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HENRY V. POOR, Editor.

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Saturday, September 29, 1849.

Iron Ores and the Iron Manufacture of the United States.

Continued from page 595.

NEW YORK

East Moriah Furnace.—This furnace was built in 1848, four miles back from Port Henry. There being no water power in the place selected, a steam engine was provided of 40 horse power. The stack is 40 feet 3 inches high from bottom of hearth to the filling plate; its diameter across the boshes is 10 feet 4 inches; across the tunnel head 3 feet 4 inches; and its capacity is 1260 bushels. The boshes slope, according to the usual plan of furnaces in this region in three planes of 60° 55° and 50°.—The hearth, five and a half feet high, is 2 feet 10 inches square at the bottom, and 3 feet 10 inches at the foot of the boshes; its length to the dam 6 feet 4 inches. The tweres, three in number, come in 22 inches above the bottom of the hearth.

The dam is 5 inches below the tymp, and 15 inches high. There are two blowing cylinders 4 feet diameter and 5 feet stroke, with a regulator 18 feet long and 32 inches diameter—the blast is introduced through nozzles of two inches and three eighths in diameter. The gases for the boiler and heating oven are taken out eleven feet down by one pipe of 22 inches diameter. The upright heating pipes are 28 in number, of circular form, 6 inches diameter inside, arranged on two bed pieces and connected by an ox-bow at top.

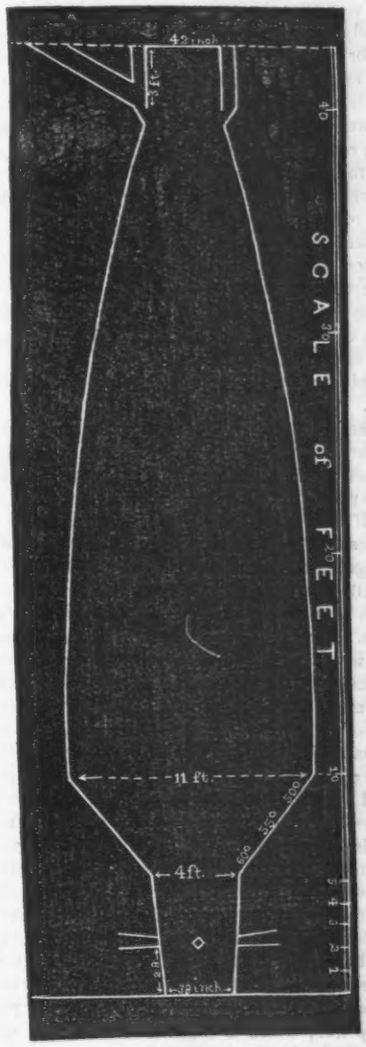
The ores are to come principally from the Sanford ore bed two miles distant; and according to a statement in my possession, they are estimated to cost at the furnace only $1·25 per ton—they must then be delivered at the mine as low as by the contract with Mr. Jackson before referred to. Other ores, as the Hall ore, are estimated at $2 per ton. Charcoal at six cents a bushel, about the usual cost in this section. Transportation to the lake fifty cents per ton, allowing 170 bushels of charcoal to the ton of iron, and a ton and two thirds of ore at $2 per ton, we have the following estimate of costs of pig iron delivered at the lake.

Charcoal, 170 bushels at 6 cents	$10 20
Ore, 1⅔ tons at $2	3 33
Flux, say 50 cents, other items $5	5 50
Transportation, to the lake,	0 50
	$19 53

Crown Point Furnace.—Owned by Messrs Hammond and Tower. This furnace is situated in Crown Point, ten miles from the village of this name on the lake shore. It was built in 1815; and has since been steadily run by Jonas Tower, Esq. The result of its operations is given in the table below, and the form and dimensions of the furnace in the accompanying figure. The furnace is blown by a steam engine of 45 horse power.—The blast is estimated in volume, at from 2400 to 2800 cubic feet a minute, blown through three tweres with three inch nozzles, at a pressure of 1¼ to 2½ lbs.

Charcoal and wood is the only fuel employed.—The coal is prepared in part in kilns in the furnace yard, and partly in pits in the woods. It costs about six cents a bushel. The quantity consumed, as seen in the table, averages 163 bushels to the ton of iron.

The ore bed which supplies all the ore is situated a little less than a mile from the furnace on a hill several hundred feet above it. So convenient is the bed that one team of two horses, I am told by Mr Tower, draws all the ore, and hauls away beside all the cinder. The unusually low sum of sixty cents is reckoned sufficient to pay for both the mining and hauling of the ore. The hill in which is the mine is made up of a rock of quartz and feldspar, with which some hypersthene is mixed. This rock lies



in stratiform masses, dipping 35° towards the east. Interstratified with it are layers of the magnetic ore, more or less mixed with quartz gangue, but much of it very pure and free from foreign matters.—What the thickness and number of the layers of ore

may be, cannot be ascertained. They are traced over a considerable portion of the eastern and southern sides of the hill, and one of them, not entirely uncovered, already shows a thickness of over 30 feet. It is worked open like a quarry, and is evidently inexhaustible. From its position, high on this steep hill, no trouble from water need ever be apprehended.

Penfield ore bed is also conveniently situated near the furnace, being about three quarters of a mile south of the mine just described. Some ore from it has been used in the furnace, but it is principally in demand for the forges, among which it has the highest reputation—the mine being regarded one of the most valuable in the vicinity of Lake Champlain.—It has been opened on what appears to be a saddle, or anticlinal axis of the stratum of ore; as this is seen curving over and dipping both east and west. Its thickness is unknown, but it is evidently very great, and is turning out a very large quantity of ore. The bed is in a granitic rock, and some of its minerals, as mica, hypersthene and chlorite are found mixed with the ore. Much of this, however, is of very pure character, and remarkable for its extremely coarse grain—another variety is very striking for its great lustre, much of it resembles the magnetic ores used in the north of Europe for the manufacture of steel. It is easily mined, and has been followed many hundred feet along its north and south course. At this mine a hole was drilled in the wall rock *nineteen feet deep*, and charged with several kegs of powder. Several thousand tons of rock were removed by the explosion.

There are other mines also in the vicinity of the furnace, one of which, in the adjoining town of Ticonderoga, has furnished some very good red oxide of iron—of the specular variety—were this in quantity it would be valuable for mixing with the magnetic ores of more difficult reduction; but I am informed the vein is not more than a foot or two thick.

What is peculiarly striking in the workings of this furnace is the regularity of its running and production. This is owing wholly to the care and skill displayed by Mr. Tower in its management; for the ore, if it have none of the injurious elements in its composition, so common to the magnetic ores, still belongs to this difficult class of ores to work, it is apparently not very different from many varieties which have caused trouble in neighboring establishments. But by a proper selection and adjustment of fluxes, the cinder is made to run of very uniform composition, clear like glass, and beautifully shaded with many bright colors, among which the prevalence of a light blue indicates the presence of some portion of titanium: this however, is evidently in too small quantity to be of any injury. So well proportioned are the fluxing materials to the impurities of the ore, that the cinder, a compound almost in exact chemical quantities, runs freely without any action upon the hearth, other than the mechanical wearing. As seen by the table, this had stood sixteen months up to the 21st October 1848, during which time there had been run over 4000 tons of iron. The hot air pipes have stood even larger than this, one set having been in use for 28 months, while over 7000 tons of iron were run. These pipes were made of Port Henry iron, which is found to be of the very best character for this use.

The iron made at the Crown Point furnace is not the best for puddling; but it bears a high character as a strong foundry iron. It is produced at the average rate of about eight tons a day, though nine or ten tons are often obtained.

Crown Point Iron Works.

DATE.	FUEL USED. Coal. bushels	Brands bush.	Wood. cords.	ORE. T. cwt.	FLUX.	IRON MADE. Castings. T.cwt.q.lb.	Extra No. 1.	No. 1.	No. 2.	No. 3.	Total.
1846.											
Blast No. 1.							T.cwt.	T.cwt	T.cwt.	T. cwt.	T. cwt.qr.lb.
Jan. from 1st.	27,284	2,300	77·99	335 6		3 0 1 14	.....	144 5	27 5	4 5	178 15 1 14
February ...	24,615	3,355	84 30	341 19		2 13 1 7	.....	145 0	38 15	6 5	192 13 1 7
March.....	22,170	4,064	112	335 16		12 16 1 27	.....	98 17	65 7	7 15	184 15 1 27
	74,069	9,719	273·120	1013 1		18 10 0 20		388 2	131 2	18 5	556 4 0 20
Blast No. 2.											
June from 17.	12,925	3,351	10·64	151 10		0 7 1 10	17 15	28 10	6 0	12 0	64 12 1 10
July.....	23,690	6,401	.....	336 10		9 8 2 9	84 5	38 15	29 5	12 10	174 3 2 9
August	28,338	6,575	.....	392 3		1 10 3 13	123 15	62 15	26 0	.....	214 0 3 13
September...	27,885	8,060	19·64	365 7		2 9 2 14	138 10	46 0	34 0	35 0	224 4 2 14
Oct., to 17th..	15,521	4,534	33·9	187 2		7 0 0 21	31 15	66 10	.....	6 0	111 5 0 21
	108,359	28,921	63·2	1432 12		20 16 2 11	396 0	242 10	95 5	35 15	788 6 2 11
Blast No. 3.											
Nov. from 11.	17,246	2,517	70·104	274 11		1 17 0 6	36 5	67 15	44 15	.....	147 12 0 6
December. ..	24,910	6,227	160·88	418 13		0 5 3 14	45 0	132 5	49 5	2 10	229 5 3 14
1847.											
January.....	24,040	6,010	155·82	410 9		0 7 3 7	115 15	86 0	22 5	3 10	227 17 3 7
February ...	22,740	5,685	142·16	373 18		2 4 3 14	68 10	79 0	42 15	15 10	207 19 3 14
March.....	29,260	7,210	166·32	415 0		20 19 1 4	4 10	173 10	21 0	11 0	230 19 1 4
April to 9th..	5,423	1,260	60·00	92 8		2 1 2 15	6 0	43 5	2 15	4 15	58 16 2 15
	123,619	28,909	755 66	1984 19		27 16 2 4	276 0	581 15	179 15	37 5	1102 11 2 4
Blast No. 4.											
June, from 24	7,604	1,430	33	75 0		0 9 2 26	.....	28 5	2 0	.....	30 14 2 26
July.....	30,107	6,843	144	524 8		1 7 1 18	78 15	167 0	12 15	6 10	266 7 1 18
August	33,297	7,568	170·33	575 9		3 10 3 23	66 10	202 5	35 5	15 5	322 15 3 23
September ..	37,200	4,255	163·92	515 5		5 7 0 4	147 0	122 0	26 0	.....	300 7 0 4
October	38,280	3,988	149·68	518 4		1 11 1 18	66 5	189 15	33 0	3 10	294 1 1 18
November ..	37,118	3,905	136 96	431 13		4 4 3 7	3 5	232 10	15 15	16 10	272 4 3 7
December...	17,908	3,745	46·96	362 4		1 12 2 23	33 0	143 15	10 5	7 10	196 2 2 23
1848											
January	32,340	9,843	217·20	469 18		0 14 2 7	.....	244 15	14 10	10 10	267 9 2 7
February ...	30,660	9,920	104·30	424 16		0 10 1 1	13 0	194 0	25 5	7 0	239 15 1 1
March.....	34,517	8,790	130·22	476 10		1 5 3 0	4 0	194 0	49 0	17 15	266 0 3 0
April..... ..	39,013	7,915	98·120	481 12		3 6 2 26	64 0	163 5	93 15	4 10	268 16 2 26
May	40,682	8,833	98 58	512 2		12 4 0 24	113 0	84 5	55 5	18 0	282 14 0 24
June.....	26,302	7,542	182 98	380 15		1 6 1 23	4 0	146 10	32 5	12 15	196 16 1 23
July..... ..	29,731	7,173	152·24	405 7		0 11 2 24	61 10	97 5	54 0	7 15	221 1 2 24
August.....	30,208	8,708	125 92	470 7		0 9 0 2	12 10	214 0	28 5	.....	255 4 0 2
September...	38,172	6,780	70	458 6		1 17 2 4	23 0	139 0	51 15	41 15	257 7 2 4
Oct. to 21....	26,652	9,329	.....	331 2		1 17 1 19	56 0	52 5	48 15	29 15	188 12 1 19
	529,791	116,567	2023·61	7412 18		42 7 2 25	745 15	2551 15	587 15	199 0	4126 12 2 25

10 per cent. limestone, and 7 per cent. grout.

RESULT.

Blast No. 1.

Coals per ton, 133 bush.
Brands " 17 "
Wood " ½ cord.

} All the wood used was soft; and about one third of the coals and brands, calling soft coal two thirds the value of hard, and allowing 1 cord of wood to 50 bush. would be equal to 168 bush. hard coals and brands per ton iron made.

Per cent. of ore, 55.
Days of blast, 90.
Iron per day 6·18 tons.

Blast No. 2.

Coals " 137 bush
Brands " 37 "
Wood " ·08 c'ds.

} All the wood soft; and about one sixth of the coals and brands, reduced as above, equal 167 bushels.

Per cent. of ore, 55.
Actual days of blast, 112.
Iron per day, 7·04.

Blast No. 3.

Coals " 112 bush
Brands " 37 "
Wood " ½ cords

} All the wood soft; and about one seventh of the coals and brands, reduced as above, equal 154 bushels.

Per cent. of ore, 56.
Actual days of blast, 149.
Iron per day, 7·4.

Blast No. 4.

Coals " 128 bush
Brands " 28 "
Wood " ·49c'ds.

} All the wood soft; and about one sixth of the coals and brands, reduced as above, equal 163 bushels.

Per cent. of ore, 56.
Actual days of blast, 471.
Iron per day, 8·76.

In the above table it is seen that a portion of the iron produced is called "extra No. 1." This is a quality of foundry iron little known at the different works in the country, though at many of them it is produced in large quantity.—Resembling at first sight more the *hard iron* of No. 3 quality, used for puddling, it is often mixed by mistake with this, causing no little trouble in this process. Its appearance is white and silvery, almost precisely like *high iron*: it is made only when the furnace is working hot; but, as Mr. Tower informs me, great heat does not always produce it. Excepting in two instances —at Middlebury and at Elyrica, Ohio, he has never seen it produced by cold blast; "but it is readily produced with the *hot blast*, where it was unknown before using it. It is a very valuable iron to mix with hard white iron, or old scrap, to soften it up.—It becomes much stronger by repeated meltings."—Beside the above places, Mr. Tower informs me, he has seen it at *Hanging Rock*, *Jackson furnace*, and some furnaces in *Scioto county*, Ohio, also at the *Katahdin works* in Maine, where it is made in large quantity; at the *Mount Savage* and *Lonaconing works* in Maryland; and at *Port Henry*, where it was for some time mixed with the puddling iron to its serious injury. Specimens of it sent from Port Henry to Lowell Mass, for trial, though condemned beforehand for casting, proved of very superior character for this use.—From the frequency of its occurrence it is important that founders should learn to recognise it, as much good pig iron has certainly been condemned at many furnaces, because it proved difficult to puddle, a use it would never have been put to, had its true nature been suspected.

It is sometimes called "highly carbonated (carburetted) iron," a name evidently given it in the old impression that the Nos. 1 and 2 contained more carbon than the high iron; and this iron is considered by those who are acquainted with it, as the most carboniferous of all the varieties. From the conditions under which it is produced and its qualities as a foundry iron, it no doubt does most resemble this in composition, and consequently contains a *small* proportion of carbon; but from the color and lustre of the iron, this carbon appears to be combined with the metal, and not mechanically mixed with it, as in the foundry irons.

The cost of pig iron manufactured at this furnace, according to the data given above, will be as follows.

Ore, 1¼ tons at 60 cents.....	$1 05
Charcoal, 163 bushels at 6 cents.....	9 78
Flux, say 50 cents, *other items* $5.....	5 50
Transportation to the lake.....	1 25
	$17 58

Mount Hope Furnace.—This furnace, owned by E. Woodruff and Son, is situated in Washington County, twelve miles from Whitehall at the head of Lake Champlain, or nine from the canal at Fort Ann, and four miles from South Bay. It was built to use some magnetic ores, that are very abundant within six or eight miles; but as these proved troublesome, and of little value from the large percentage of sulphur they contain, the supplies were finally brought from the mines near Port Henry. These cost, as before stated, on the shore of the lake from $2 50 to $2 80 a ton, and the transportation by boats to Fort Ann, and thence in wagons to the furnace is a dollar and a half more, making the whole cost not less than $4·25 per ton. With them is mixed a certain proportion—about ten per cent., of the Whitehall ores.

The furnace is well built and provided with necessary apparatus including hot blast pipes; but its production has never been very great. The stack is 40 feet high, and the diameter across the boshe nine feet—of the tunnel head three and a half feet The hearth is seven and a half feet high and thirty inches square at bottom. It is blown by water power, with one cast iron cylinder and a water regulator, through three tweres with two and a half inch nozzles. Charcoal is abundant, and costs about five and a half cents a bushel. The yield of iron is from four to five tons a day. It is of Nos. 1, 2 and 3—of good quality, both the forge pig and foundry iron.

Rating the ore to the ton of iron at $7, and 160 bushels of charcoal to the ton, these two items come to $15·80; to which adding for the other items the usual allowance of $5 or $5·50, the pig metal costs about $21. At the works, connected with the furnace property, are 3000 acres of land and about 21 dwelling houses. H.

Virginia and her Resources.

Having recently returned from a trip through the interior of Virginia, and taking considerable interest in the public improvements of this country, I will endeavor to give you and your readers a schedule of the present and proposed public works of this State. First upon the list, from its importance, comes the James river and Kanawha Canal. This extensive work has been so long under course of construction from various causes, that the inhabitants generally of the southwestern portion of the State, have scarcely any knowledge of the present immense works that are going forward on the extension of this important improvement from Lynchburg to Buchanan, 52 miles. From Richmond to Lynchburg, 146 miles, the canal traverses one of the most fertile and picturesque valleys in this country. This, however is not the case with the extension. From Lynchburgh, westward until the canal reaches Buchanan, (with one or two exceptions,) the valley of the river is narrow and bounded on both sides with high mountains, rendering it extremely difficult in many places to find ground to build a towing-path upon. The works, many of them, are very extensive. The extension chiefly consists of a series of locks and dams, one of which, the Judith Dam, 4 miles above Lynchburg, is, I believe, the heaviest piece of masonry at present in course of construction in the United States. The dam is intended to raise the water in the river 32 feet; thereby securing a navigable reach of 5 miles. There will be, I was informed, nearly 20-000 cubic yards of solid masonry in this work and its appurtenances, and the cost of this alone, will be one hundred thousand dollars. From this place to the mouth of the North River, the valley is extremely narrow, and at present, very unhealthy; so much so, that the work is very much delayed for want of workmen, although the contractors offer $2 50 per day, and steady work, for masons. At the junction of the North with the James river, 30 miles above Lynchburgh, the company have constructed a large dam, and are using the water power for the purpose of driving their cement mills.—They manufacture their own cement, and from the samples I examined, I think it will compare most favorably with the best Rosendale cement. The contractors for manufacturing this article, Messrs. C. H. Locker & Co., are at present making 1000 bushels a day at this place, of a superior quality. They have also another mill some miles distant up the river, where they also manufacture a large quantity. All of the improvements upon the extension are of a solid and substantial character, and are in this respect far superior to the works west of Lynchburg. The engineer in charge of the division west of Lynchburg, D. S. Walton, Esq, has been long connected with the public works of this country, and has, I believe, been for several years past engaged upon the ship canals of Lower Canada.—The appointment of Mr. Walton to the charge of the extension is, from his known reputation, sufficient guarantee of the permanent character of of the work.

At Buchanan and Pattonsburg the canal reaches "the valley," and will, I have no doubt, when completed to these villages, receive a large addition to its present tonnage. The tide water connection recently let, will also contribute materially to its success. The next division from Buchanan to Covington, a distance of 40 miles, will, I learn, be let some time next year. From this place across the Alleghanies, to the head waters of the Kanawha, it is not as yet, I believe, decided whether the extension shall be, by canal or railroad. From Lynchburg to Covington, the canal traverses a region of country that is rich in its mineral wealth alone.—There are at present very many iron furnaces in active operation, and from the great facilities that will be afforded by the canal when finished, we may expect to see many more in operation. The iron deposit is boundless, and as fuel and all the necessary materials for manufacturing are at hand, and at slight cost, iron can be manufactured in this portion of Virginia so as to compete with any other part of the United States. I was informed that when the canal is completed to Buchanan, the iron manufacturers will save $3 per ton in transportation alone—as the transportation of this article, and also others, is now done in "Batteaux," at a cost of $4 per ton to Lynchburg, where the most of it is transhipped to canal boats. I had the pleasure some few days since of visiting the Ætna Furnace (hot blast) of Messrs Allbright, Sherrerd & Co., some 3 miles from Buchanan. I found their works to be the most extensive, and at the same time, the best managed and conducted works I have ever seen in Virginia. They have shown a spirit of enterprise in the construction of the railway to their mines that alone should insure them success. Their ore bank is situated on the extreme top of "Garden Mountain," 9½ miles distant from the furnace, and elevated 2,000 feet above it.

The vast expense of transporting the ore from this great heighth and distance to the furnace by means of horses and wagons, rendered it necessary for them to devise some cheaper mode. The only way in which this could be done was to build a railway, and they with true northern spirit, and at an expense of some $12,000, commenced and completed a work that will well repay a person for a visit. As before stated, this road is 9½ miles long, and ascends to the mine 2,000 feet—1400 feet of this great elevation is overcome in the last five miles—the maximum grade being 5 feet per 100, and the minimum curvature 30°. Almost any other persons would have been discouraged by looking at the formidable mountain they were obliged to ascend. The location of the road upon the most vertical face of the mountain displays great judgment upon the part of Dr. Shererd, who had the entire control of it. They were obliged in order to get distance sufficient to overcome the great ascent, to build a switch line, and there are 3 of these, each one mile in length. As you reach the top of the mountain and look back, the whole road is distinctly visible from the base of the mountain to your feet, and it is indeed a singular sight to see the crooks and turns of it as it follows the projections and depressions upon the face of the moun-

tain. They are enabled by means of this road to compete with any other furnace in the country, and they make at present in one furnace 50 tons per week. I was much pleased to see even such a rail road in the interior of Virginia, and I hope it is but the predecessor of many others (if not of a like character) of such a one as will develope the immense (at present dormant) resources of this truly favored State.

The Great Virginia and Tennessee line railroad from Lynchburg to the Tennessee line near Abingdon, now engrosses the attention of the leading men in this portion of the State. I am sorry to learn that a considerable amount of stock, $70,000 yet remains to be subscribed in order to secure the splendid amount subscribed by the State. The city of Lynchburg, with only 8000 inhabitants, all told, white and black, stepped forward gallantly, subscribed and became security for the interest upon a subscription of $500,000. But even with this splendid example before them, the people, the most to be benefitted by this great improvement, still hold back, and the State subscription may yet be lost. There was a convention lately held at Christianburg, at which I was present, and was surprised to see so much apathy existing among those those who are perfectly able to subscribe, and who are most deeply interested.

If a railroad with the assurance that this has, of being one of the best paying roads in the Union, was started among the eastern people with a State subscription of three-fifths its capital, the remainder would be taken in 24 hours. Yet at the convention able speakers and gentlemen who commanded the utmost confidence of the people, were unable to get a single share subscribed, although at that time only $90,000 was required to secure the road. The region of country traversed by this route is rich in every thing.

It is without exception one of the best agricultural portions of the State, and its mineral wealth is indeed wonderful. Iron, lead, copper, gypsum, coal, salt, and every mineral in use abound; but they are at present worthless, as the cost of transportation by teams is so great that it is impossible to send off the manufactured article. Yet with this railroad all these great mines of wealth will be opened and who can compute the results? The road is also designed to connect at the Tennessee line with the East Tennessee and Virginia railroad running to Memphis.

It will also connect with the Richmond and Danville road, and eventually crossing the James river, will connect with the Louisa railroad, and thence by the Alexandria and Gordonsville road, give a direct railroad communication (with the exception of 6 miles between Alexandria and Washington,) from Memphis to Baltimore, Philadelphia end New York. It will become, when finished, the great route for the immense southern travel, and from the healthy character of the country it runs through, and its many attractions in the shape of beautiful scenery, and the celebrated Springs of Virginia, will certainly command all the pleasure travel from the south to the north and *vice versa*. The road also can be constructed so, say the estimates of competent engineers, for $14,300 per mile, with a rail of 50 pounds to the yard, being less than one-half the cost of the New England roads, and only one-third the average cost of all the roads in the United States.

The maximum grades are even over the 'Blue Ridge' and the 'Alleghanies' (the heretofore supposed insurmountable barriers), only 68 feet per mile, and the minimum curvature 600 feet radius. When I look upon the rugged and barren hills of Maine, New Hampshire, Vermont and Massachusetts, and see them cut up with railways, constructed at a cost of 30 or $40,000 per mile, where there is not enough produce raised to sustain the inhabitants, and no mineral wealth, and contrast with them the portion of Virginia traversed by this proposed road, that can be constructed at so small a cost, and which will develope such sure resources of a large revenue, you need not think strange if I wonder at the apathy that exists along its line. The able President of the company, Gen. O. G. Clay, is, however, sanguine of success, and will, I trust, be able to carry out this great work.

The road has been confided to good hands, and will, I trust, be carried forward to a successful completion. Notwithstanding the great indifference that exists with regard to the road at present, the surveys are going forward under charge of Col. C. F. M. Garnett, as Chief Engineer, and I was informed by him that the company intend letting 60 miles (to Salem) this fall. That this great work may be carried forward and vigorously prosecuted to an early completion, is very desirable, as it will serve to open the eyes of many who will not see at present, where their best interests lie.

The Richmond and Danville Railroad is moving forward rapidly and it will, I believe, be in operation next spring. The Louisa railroad is already completed to Charlottsville, or nearly so; and the extension from the junction to Richmond, is being pushed forward rapidly. The State Tunnel thro' the Blue Ridge, in connection with the Staunton road will open to this road a boundless source of trade, and it will, in a few years reach the Ohio river, thereby securing to Richmond her portion of the western trade.

Petersburg is also in the field, and with the State and her subscription, will be enabled to complete the South Side railroad, which is intended ultimately to connect her with the Virginia and Tennessee railroad. She has already the Richmond and Petersburg railway, giving her railway connection with the north—the Petersburg and Roanoke railroad (now relaying with a heavy rail) giving her connection with the south—the Clover Hill railroad giving a railway connection with the inexhaustible coal fields of Chesterfield; and the Appomattox railroad, giving a connection with tide water at City Point. Norfolk and Portsmouth are also beginning to wake up, and a railroad is spoken of to run direct to the Virginia and Tennessee road. The Portsmouth and Roanoke railroad, after a long resting spell, is now being relaid with a heavy rail, and they expect also to reach the line of western improvements.

A railroad to run from Richmond direct across to the head of York River or bay, is in contemplation, thereby giving to Richmond a superior tide water connection at that place.

The Alexandria and Gordonsville railroad has already been laid before your readers in a previous publication. Suffice it at the present time to say that the road is going forward vigorously.

The Richmond, Fredericksburg, and Potomac road has been too long before the public to be classified among the new internal improvements. The Rappahannock Canal, terminating on top of the highest land in Fredericksburg, with tide water some hundred feet below, is also in operation.

The policy of thus terminating long lines of internal improvements on the top of the highest land, in the neighborhood of the termini, is, I must confess, a policy I cannot fully understand, and one that I feel confident is not practised in any other State but Virginia, and even she has awakened to her error in this respect as the recent letting of the tide water connection at Richmond fully proves.

Virginia has slept, but she awakens refreshed by her slumber, and will ere long be where she should be, not only among the first of the internal improvement States, but in the front rank as a political State. R.

Ohio.

Central Railroad--Eastern Extension.—The Granville *Intelligencer*, concludes a very sensible article, advocating the Licking Co., subicription, with the following paragraph:

We will say, however, that before our citizens vote money for this object they should have some assurance that the road will be built between Zanesville and Wheeling. How is this, friend Layman; can you tell us what is being done towards that object? Our citizens would like to hear something about it.

We cannot offer a better answer to these queries, than is given in the concluding paragraph (and only one touching that point) in the report submitted by the President, Col. Sullivan, to the late meeting of Stockholders, and by the latter accepted. It is appended, and we hope that it will be satisfactory to our Western friends. Col. S. says:

"There is much interest felt in the extension of our line easterly from Zanesville, that it has been thought advisable to invest the Agent of the Company (who is canvassing the country for subscriptions to be used on the West end of the road) with power to collect subscriptions for the Eastern division of the work, to be used exclusively in that direction so soon as circumstances shall justify. Viewing the anxiety of the Central Ohio to make, at early day, an eastern railway connection, aware that if *we* do not furnish facilities for such a connection, some other route will, and also in justice to the citizens of the eastern division of our county, good policy, and good faith dictate an extension of our line to the Ohio river as soon as practicable.—*Zanesville Courier.*

Cleveland and Pittsburg Railroad.

It gives us great pleasure to learn that a contract has been completed with Messrs. J. & S. Chamberlin & Co., of Vermont, for the entire completion of our road, ready for the running of the cars, from Cleveland to the Ohio River. Sixty-five continuous miles from Cleveland to the mouth of Hahn's Run, on the Sandy, to be completed by the fall of 1850, and from that point to the River in one year from that time.

The ability of Messrs. Chamberlin & Co., to complete the contract, notwithstanding it is large, is not doubted. They have been largely engaged on Public Works, for the last fifteen years. They had work on the Pennsylvania and Ohio canal, near our place. From here they went to the Erie Extension Canal, and completed heavy work there.—Their next work was on the Wabish and Erie Canal; and although heavy, was promptly completed. From there they went to Canada, and completed under Government, heavy work on the St. Lawrence Canal. Their next work was seventy-two miles upon the Rutland Rail Road, amounting to near a million of dollars; this work they have just completed. They have seventy-five miles of the Ogdenburgh Rail Road, which they will complete early next summer, which will amount to nearly as much as their Rutland contract. We have not time to say more at present—but will recur to the subject again.—*Portage Co., Whig.*

New Hampshire.

Opening of the Cocheco Railroad.—The opening of this road from Dover to Farmington, N. H., a distance of 18 miles, took place on Tuesday 18th inst. The road is built upon a ridge rising from the valley of the Cocheco river, thus giving to passengers a very fine and extensive view of the country along the line. It is proposed to continue the road as soon as practicable to the head of Alton Bay; thence along the southern and western side of Winnipiseogee Lake to the Weirs, there connecting with the Boston, Concord and Montreal railroad. There

is also a road in progress from Portsmouth to Dover, to connect with the Cocheco.

According to the surveys, this line of road brings Montreal and other places on the route, some 55 miles nearer the seabord than any of the proposed routes

The length of the road from Dover to the Weirs is 44 miles, of which between 15 and 16 miles are level, 17 at a grade of less than 26 feet, the remainder, about 9 miles, varying from 26 to 60 feet.—From Dover to Farmington, the present termination of the road, there is not a losing grade, and the cost of the road has been something less than $20,000 per mile.—*Traveller.*

Boston Concord and Montreal Railroad.—We last week reported the earnings of this road, for the month of August, at $9000. We are informed by the Treasurer that the amount was not correctly stated, the earnings have been as follows:

Total receipts	$15,574 90
Less paid to connecting roads..	5,301 02
Net	$10,273 88

We understand that ten miles more of the road is soon to be put under contract, which will carry it to Warren Village, 14 miles from Haverhill.

Tennessee.

Nashville and Chattanooga Railroad.—We copy the following from the Nashville Union, relative to the progress of the above road.

"It is now all under contract from this place to the Tennessee river, and the contractors will be required to complete the grading so that the road will be ready for the iron, which is expected to arrive early next spring. During the next year, some fifty or sixty miles of the road, commencing at Nashville, will be completed, and the cars placed on it. This is a most gratifying prospect, and it will no doubt incite the stockholders to the prompt payment of the calls of the company. It should also be regarded as of vast importance to our City: as hastening the day when we are to become a great commercial and manufacturing City. Rapid as has been the recent growth of Nashville, the first year of its advance after the completion of the great work to which our corporation so wisely lent its aid, will outstrip in its results any ten years of its previous progress.

While upon this subject, we may remark that the citizens of North Alabama are already moving to secure a connexion with our road by a branch road from Huntsville. The point at which this connection should be made is evidently at Nashville. Our road, it is true, might be reached at a point much nearer to, Huntsville, but as the people of Williamson, Maury and Giles, three of our wealthiest counties, will also need a road, the connection by the way of Pulaski, Columbia, and Franklin, would be the easiest made and the most profitable. Besides, a part of this road would be also a part of the one which is destined soon to be constructed from Nashville to Memphis, and perhaps eventually, from Memphis to the Pacific ocean. We want then only a road from Cincinnati to Nashville to connect us with the entire chain of Northern and Eastern railroad and canals, by the way of Sandusky City, Buffalo, etc., as we shall be already connected with the Southern and Eastern works, by the way of Charleston, Richmond, Baltimore etc. Virginia is pushing her road to the East Tennessee line, and our neighbours of that section of the State will, we cannot doubt, extend the work until it joins the Georgia road, and thus connects with ours. We are making no extravagant predictions. Most of the works we have referred to are already in progress; and he who lives ten years longer will live to see them all completed. Nashville will then be the great central city from which all these roads will diverge, and it is past the power of human calculation to predict its rapid advance and its boundless prosperity."

Georgia.

We copy the following letter from the Chattanooga gazette, in relation to the probable course of trade in Tennessee, after the completion of the Western, and the Nashville, and Chattanooga road.

FORT HILL, GILES CO., (TENN.) AUG. 29, 49.

Mr. Parham:—We are glad to learn through the Gazette that the railroad will be completed this fall to the river. Our citizens are unanimous in desireing to change the current of trade from New Orleans to the South, and are willing to send this fall and winter the whole of their surplus produce—Cotton, Corn, Bacon, etc., to Charleston, Savannah and Augusta.

We can send from Elk river twenty thousand bales of cotton and the amount of bacon, corn, oats, flour, etc., cannot be well calculated.

Some of our enterprising citizens contemplated erecting a pork packing house, with the expectation of shipping to Charleston and Savannah.

Two of our citizens also, are holding themselves in readiness to bring a light steamboat into the Elk river trade, the moment our citizens determine to change their trade to the South. The only difficulty which will stand in the way, after the completion of the road, is the *heavy freight* of the railroad. The rate is too high for our people. It is a little more than double the freight to New Orleans. One of our neighbours, last season, sent one half of his cotton crop to New Orleans and the other half to Charleston, and although he got the best price at the latter place, yet the half sent to New Orleans yielded him the best profit.

If the railroad proprietors can find it to their interest to reduce the rates of freight, you may look for us in your town as soon as our cotton is baled.—The penny postage in England increased the receipts in that department, and the reduction in postage is about producing the same results in our own country, and might it not have the same effect in the railroad interest?

We have anticipated, with some enthusiasm, the change of trade from New Orleans to Charleston and Savannah, by the way of your railroad, and nothing but compulsion will drive us *down* the Tennessee river instead of up it, and we shall relinquish with much reluctance, the idea of freighting on your road to these great marts of trade.

Ours is a rich, fertile valley, abounding in every useful and convenient commodity, and the amount of produce we can send down our beautiful little stream is incalculable; and its influence will be felt upon any road or in any market. In Giles county, alone, our *surplus* produce amounts to *one million seven hundred and fifty thousand dollars*, and this, too, with every inconvenience of getting to market. It will be more than double when the route is opened to your markets.

I expect our citizens will send a deputation to the proprietors of the road, to ascertain what can be done in reference to the reduction of freight. We are more than anxious, as it will be greatly to our advantage to take your route to market,

Iron Manufacture in Georgia.

We make the following extracts from a letter of the editor of the Macon Journal, who has recently made a tour through the northwest portion of this State, and whose observations have been published in a series of instructing letters. In speaking of the iron manufacture of that State he says:—

"The Etowah Mills are located on the Etowah river, a few miles from Cartersville, on the Western and Atlantic railroad. They consist of two extensive furnaces, a rolling mill, a nail factory and machine shop. The nail factory and machine shop are not yet in operation, though the building is in process of construction, and Major Cooper is now at the north procuring the machinery. It is expected that it will be on hand and ready for use by the first of January, when they will be enabled to make from three to four tons of nails per day. This branch of business, it is anticipated, will be profitable.

The furnaces, known as the Etowha and Alatoona, are situated about two miles from the rolling mill. The former belongs to Messrs. Cooper and Wiley, and the latter to Messrs. Stovall and Lother. At these furnaces the ore is taken in its crude state and converted first into what is termed, "pig iron," and then into every variety of hollow ware, mill and gin gearing, etc. Allatoona Furnace is situated on the Allatoona creek, about 1¼ miles from its mouth, and 2¼ miles north of the celebrated "Allatoona Old Town." There are employed here about 75 hands, who turn out, every 24 hours, about 1,500 pounds of hollow ware, and 4,500 pounds of pig metal—making together about 6,000 pounds. The ore here is convenient to the furnace, as well as the coal—the distance which they are brought being only three-quarters of a mile to two miles. The ore which they are at present working at this furnace, yields 50 per cent. of pure iron; and they have recently discovered a quality which is said will yield 75 per cent. The proprietors dispose of their pig iron mostly to the Etowah company; but, being within 2¼ miles of the railroad, they enjoy peculiar advantages for supplying distant purchasers. The Etowha Furnace is pretty much a counterpart of one just described. I shall, therefore, omit a minute description.

In this branch of business, there are employed about 30 operatives, who are divided into two gang; and work night and day, producing about 6 tons of merchntable iron every 24 hours. There are daily consumed in the mill about 25 cords of wood and 350 bushels of charcoal. There are also planing machines, turning lathes, and several blacksmiths' forges, which are constantly in operation in making mill spindles, gudgeons, etc., and in finishig such portions of the castings as are intended for machinery. It is in contemplation, we understand, very greatly to extend the business in the machine department, and a building is now being erected for that and the nail factory, which is 150 feet in length by 40 feet in width.

There are employed, directly and indirectly, about this establishment, over 200 hands, who, with their families, consume per week 200 bushels of corn, 30 barrels of flour and 1,000 pounds of pork, besides fresh meats, poultry, vegetables etc.

About half way between the rolling mill and the railroad is the celebrated Etowah flouring mill—one of the best in the south. This mill is said to have cost $50,000 and is capable of producing 200 barrels of flour per day. It is also owned by the same company, and, I regret to add, is now doing but a limited business, in consequence of the almost total failure of the wheat crop in this region.

I have not the data upon which to estimate the precise amount of capital invested in these various establishments, as I have not been able too see either of the proprietors. It cannot, however, be much under *Two Hundred Thousand Dollars.*

Industrial Heroes.

Richard Arkwright, it would seem, was not a beautiful man; no romance hero with haughty eyes, Appollo lip and gesture like the herald Mercury—a plain, almost gross, bag-cheeked, pot-bellied Lancashire man, with an air of painful reflection, yet also of copious free digestion;—a man stationed by the community to shave certain dusty beards, in the Northern parts of England, at a half-penny each. To such end, we say, by forethought, oversight, accident, and arrangement, had Richard Arkwright been, by the community of England and his own consent, set apart. Nevertheless, in strapping of razors, in lathering dusty beards, and the contradictions and confusions attendant thereon, the man had notions in that rough head of his; spindles, shuttles, wheels and contrivances plying ideally with the same; rather hopeless looking; which, however, he did at last bring to bear. Not without difficulty. His townsfolk rose in mobs round him, for threatening to shorten labor, to shorten wages; so that he had to fly with broken washpots, scattered household, and seek refuge elsewhere. Nay, his wife too, as I learn, rebelled; burnt his wooden model of his spinning wheel; resolute that he should stick to his razors rather; for which, he decisively as thou wilt rejoice to understand, packed her out of doors. O reader, what a Historical Phenonmenon is that bag bellied, much enduring, much inventing man and barber? French Revolutions were a brewing; to resist the same in any measure, imperial Kaisers were impotent without the cotton cloth of England; and it was this man that had to give England the power of cotton.

Neither had Watt, of the Steam Engine, a heroic origin, any kindred with the princes of this world. The princes of this world were shooting their partrigdes; noisily in Parliament, or elsewhere, solving the question—Head or Tail? While this man with blackening fingers, with grim brow, was searching out, in his workshop, the Fire secret; or, having found it, was painfully wending to and fro, in quest of a "monied man," as indispensable man-midwife of the same.—*Carlyle.*

Railway Share List,

ON A PAR OF $100 ACCORDING TO THE LATEST SALES.—CORRECTED EVERY WEDNESDAY.

NAME OF COMPANY.	Length of line.	Length of branches	Miles finished.	Cost of road and equipment.	Cost per mile.	Capital st'k paid in.	Debts more than surplus.	Ruling grade.	Earnings 1848.	Expenses 1848.	Net earnings 1848.	Rate of dividendin 1848.	Price of shares.	Remarks.
Atlantic and St. Lawrence	146	....	47	1,405,47(	2992	861,914	460,562	35	.....	.....	.....	.....	78 a 81	
Androscoggin & Kenneb.	55	....	6	In progre	.....	.....	.....	..	.....	.....	.....	.....	70	
Albany and Schenectady.	16½	....	16½	$1,606,19(	100,000	.....	.....	..	.....	.....	.....	1 5-9	82	
Auburn and Rochester...	78	....	78	2,644,52(	34,000	.....	.....	..	175,922	.....	.....	8	84½	
Auburn and Syracuse....	26	....	26	1,125,886	43,30(	.....	.....	..	454,721	.....	.....	2 9-10	77½	
Attica and Buffalo.....	31½	....	31½	821,31:	26,000	.....	.....	..	172,185	.....	.....	4½	.....	
Allegbany Portage.....	36	....	36	.....	.....	.....	.....	..	150,959	.....	.....	.....	.....	
Albany and W. Stockb...	38½	....	38½	1,924,701	50,000	.....	.....	..	.....	.....	.....	.....	Leas'd to Western railroad.	
Annapolis and Elkridge..	21	....	21	.....	.....	.....	.....	..	.....	.....	.....	.....		
Bangor and Oldtown....	11½	....	11½	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Boston and Lowell.....	25½	1½	27½	2,013,68(	73,200	1,800,000	.....	10 up, 30 down.	461,33(	268,707	192,631	8	116a147	
Boston and Maine.....	74½	5	79½	3,571,83(	45,000	3,249,804	249,715	47½	511,627	264,534	247,89(	8½	104	
Boston and Worcester...	43½	22	66½	4,960,00(	74,700	1,500,000	460,000	40	716,284	406,303	310,08(	8½	98	
Boston and Providence...	41	6½	47½	3,031,10(	63,800	2,893,300	26,878	37½	354,37(	183,361	170,013	6½	91	
Bost., Concord and Mont.	90	....	38	In progre	.....	.....	.....	..	.....	.....	.....	.....	82a85	
Berkshire.....	21	....	21	600,00(	28,500	.....	.....	..	.....	.....	.....	7	.....	
Buffalo and Niagara.....	22	....	22	250,39(	11,500	.....	.....	..	60,014	.....	.....	6 1-3	.....	
Buffalo and Black Rock.	3	....	3	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Baltimore and Susqueh'a.	36	....	36	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Beaver Meadow.....	26	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Buck Mountain.....	....	....	4	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Baltimore and Ohio...	....	....	178											
Washington Branch.	....	....	31	13,136,940	61,900	.....	.....	..	1,468,825	805,530	663,198	.....	43½a44	
Frederick Branch...	....	....	3											
Calais and Baring.....	3	....	3	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Concord	34	....	34	.....	.....	1,350,000	.....	..	318,257	179,872	138,385	10	121	
Cheshire	54	....	54	2,584,143	48,000	1,453,379	1,140,764	60	.....	.....	.....	.....	67a67½	
Connecticut and Passump.	115	....	40	1,161,669	29,000	980,090	458,569	26	.....	.....	.....	.....	78	
Connecticut River.....	50	2	52	1,588 184	30,500	1,234,970	426,013	32	45,652	23,724	421,938	2	93a94	
Cape Cod Branch.....	28	....	28	60,0000	21,400	313,000	257,000	40	.....	.....	.....	.....	62	
Corning and Blossburgh..	....	....	40	.....	.....	.....	.....	..	18,069	.....	.....	.....	.....	
Cayuga and Susquehanna	29	....	29	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Camden and Amboy...	61													
Trenton Branch.....	6½	..	96½	3,200,000	33,000	.....	.....	..	.....	.....	.....	.....	140 a 142	
New Brunswick Br..	29													
Columbia.....	82	....	82	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Camden and Woodbury..	9	....	9	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Cumberland Valley.....	....	....	52	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Carbondale & Honesdale.	26	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Chesterfield.....	12	....	12	150,000	13,500	.....	.....	..	.....	.....	.....	.....	.....	
City Point.....	92	....	9½	118,060	15,919	.....	.....	70	.....	.....	.....	.....	.....	
Central of Georgia.....	191	....	191	3,222,289	16,800	.....	.....	30	516,252	266,450	250,226	.....	80	
Central of New Jersey...	63	....	36	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Dorchester and Milton...	3½	....	3½	114,224	35,100	72,990	41,234	39	.....	.....	.....	.....	74	
Detroit and Pontiac.....	25	....	25	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Eastern.....	54	19½	73½	.....	.....	.....	.....	40	.....	.....	.....	8	100½	
Essex (Salem to Law.)...	22½	....	22½	421,574	18,700	263,746	160,958	55	.....	.....	.....	.....	.....	
Erie and Kalamazoo.....	33	....	33	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Fall River.....	42	....	42	1,145,982	27,300	1,050,000	83,177	45	184,344	109,390	74,953	7½	85	
Fitchburgh.....	49½	6½	56	2,945,630	52,300	2,735,910	67,504	..	486,265	286,046	200,219	8½	109	
Franklin.....	....	....	22	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Greensville and Roanoke.	21	....	21	283,917	13,500	200,000	400	96	309,82	200,34	10,949	2½	40	
Germantown Branch.....	6	....	6	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Gaston and Raleigh.....	96	....	96	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Georgia (Augusta to At'a)	171	....						40	477,052	267,173	209,879	.....	121	
Athens Branch.....	....	39	210	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Harrisburg and Lancaster	37	....	37	1,183,257	31,979	609,550	573,707	49	121,350	37,386	83,963	6	96 a 97	
Hartford and New Haven	62	....	62	.....	.....	.....	.....	17	.....	.....	.....	.....	107	
Housatonic.....	74	....	74	.....	.....	.....	.....	..	.....	.....	.....	.....	85	
Hudson and Berkshire...	31½	....	31½	818,983	26,500	.....	.....	..	.....	.....	.....	.....	.....	
Hazleton and Lehigh....	10	....	10	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Jackson and Brandon....	13	....	13	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Lexington and W. Camb.	6½	....	6½	252,680	38,900	.....	.....	55	.....	.....	.....	.....	.....	
Lowell and Lawrence....	12½	....	12½	283,248	22,650	.....	.....	45	.....	.....	.....	.....	85	
Long Island.....	98½	....	98½	2,173,646	22,100	.....	.....	..	.....	.....	.....	.....	18	
Lockport and Niagara...	23	....	23	221,000	9.700	.....	.....	..	.....	.....	.....	.....	.....	
Lewiston.....	3½	....	3½	33,673	10,300	.....	.....	..	.....	.....	.....	.....	.....	
Lykens Valley.....	16	....	16	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Little Schuylkill.....	23	....	23	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Louisa.....	50	....	50	474,137	9,482	.....	.....	..	.....	.....	.....	.....	.....	
Lexington and Frankfort.	29	....	29	450,00(	15,600	300,000	.....	61	50,000	30,00(	10,000	.....	82a85	
Little Miami.....	84	....	84	1,513,402	18,000	.....	.....	..	.....	.....	.....	.....	.....	
Machiasport.....	8	....	8	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Morris and Essex.....	....	....	45	.....	.....	.....	.....	80	.....	.....	.....	.....	100	
Mauch Chunk and R. Run	36	....	36	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Mine Hill & Sch. Haven.	25	....	25	.....	.....	.....	.....	..	.....	.....	.....	.....	136	
Mount Carbon	7	....	7	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Mt. Carbon & Pt. Carbon	2½	...	2½	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Mill Creek.....	6	....	6	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Montgomery & W. Point	67	....	67	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	

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NAME OF COMPANY.	Length of line.	Length of branches.	Miles finished.	Cost of road and equipment.	Cost per mile.	Capital stk paid in.	Debts more than surplus.	Ruling grade.	Earnings 1848.	Expenses 1848.	Net earnings 1848.	Rate of dividend in 1848.	Price of shares.	Remarks.
Madison and Indianapolis	86	....	86	.....	.....	.....	.....	..	.....	.....	.....	.....	112	
Mad River and Lake Erie	102	....	102	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Mansfield and Sandusky	....	....	56	$1,106,121	19,700	.....	.....	..	.....	.....	.....	.....	.....	
Michigan Central	....	....	221	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Michigan Southern	....	....	70	.....	.....	.....	.....	..	.....	.....	.....	.....	81	
Tecumseh Branch	10	....	....	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Macon and Western	....	....	101	328,091	6,218	.....	.....	..	.....	.....	.....	.....	.....	
Mississippi	....	....	30	.....	.....	.....	.....	30	140,970	63,243	78,722	.....	48a48½	
Nashua and Lowell	....	....	14½	525,063	36,200	525,000	.....	..	.....	.....	.....	.....	.....	
Northern (Ogdensburg)	....	....	12	In progress.	.....	.....	.....	13	169,187	109,599	59,588	10	.....	
" (Concord to Leb'n.)	69½	}	....	2,762,500	34,000	.....	129,978	..	.....	.....	.....	.....	.....	
Bristol Branch	12½	}	81½	.....	.....	.....	.....	50	408,455	241,370	167,277	.....	65	
N. Bedford and Taunton	....	....	20	499,065	24,998	400,000	.....	..	.....	.....	.....	.....	105	
Norfolk County	....	....	26	621,488	23,900	414,256	.....	40	136,151	96,220	39,225	6	.....	
N.Y. & N. Haven (14 mls.	Har	RR)	62	.....	.....	.....	.....	35	.....	.....	.....	.....	33a34	
New Haven Canal	....	....	28	.....	.....	.....	.....	..	.....	.....	.....	.....	22	
Norwich and Worcester	59	7	66	2,187,829	33,100	.....	.....	..	.....	.....	.....	.....	.....	
New York and Harlem	....	....	80½	3,579,567	44,600	.....	.....	32	218,073	170,297	.....	.....	36	
New York and Erie	....	....	200	.....	.....	.....	.....	..	.....	.....	.....	.....	53½	
New Jersey	....	....	29	.....	.....	.....	.....	..	.....	.....	.....	.....	60¼	
Newcastle & Frenchtown	....	....	17	.....	.....	.....	.....	..	.....	.....	.....	.....	108 a 110	
N. Orleans and Carrollton	....	....	5½	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Old Colony	37½	7½	45	2,080,903	46,200	1,601,415	683,648	40	227,350	139,592	87,757	6½	78	
Oswego and Syracuse	....	....	41	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Portland, Ports. and Saco.	51	....	51	1,350,000	26,400	.....	.....	..	.....	.....	.....	.....	.....	
Peterboro' and Shirley	12	....	12	208,311	17,300	.....	.....	..	.....	.....	.....	6	98½	
Pittsfield and N. Adams.	18½	....	18½	447,755	24,000	.....	.....	66	.....	.....	.....	.....	.....	
Providence and Worcester	43½	....	43½	1,873,895	43,000	.....	573,058	26	193,844	83,889	109,954	.....	82½	
Paterson and Hudson R.	16½	....	16½	.....	.....	.....	.....	..	.....	.....	.....	.....	110a111	
Philadelphia and Trenton	28	....	28	.....	.....	.....	.....	..	.....	.....	.....	10	130 a 140	
Philad. Wilm. and Balt.	97	....	97	6,173,851	66,000	.....	.....	..	638,142	382,608	.....	.....	55	
Philadelphia City	6	....	6	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Philad. Germ. and Nor.	17	....	17	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Philadelphia and Reading	93	....	93	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Penn Township	2	....	2	.....	.....	.....	.....	..	.....	.....	.....	.....	36¼	
Petersburg	59	....	59	946,361	16,040	.....	.....	..	.....	.....	.....	.....	.....	
Ponchartrain	4½	....	4½	.....	.....	.....	.....	..	163,092	87,131	.....	.....	.....	
Pt. Hud., Jack. and Clint.	28	....	28	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Rensselaer and Saratoga.	25	....	25	661,910	26,400	.....	.....	..	.....	.....	.....	.....	.....	
Ramapo and Patterson	15	....	....	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Rich. Fred. and Potomac.	75½	....	75½	1,474,001	19,459	.....	.....	..	.....	.....	.....	.....	80	
Richmond and Petersburg	22	....	22	877,484	39,886	.....	.....	..	206,858	100,568	.....	.....	.....	
Sullivan	28	....	28	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
South Shore	11½	....	11½	255,748	22,200	135,935	128,075	35	.....	.....	.....	.....	.....	
Stony Brook	13	....	13	246,659	19,000	216,829	29,189	40	.....	.....	.....	.....	33½	
Stonington	50	....	50	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Saratoga and Washington	40	....	40	948,372	23,700	.....	.....	..	.....	.....	.....	.....	52	
Syracuse and Utica	53	....	53	1,968,036	37,060	.....	.....	..	.....	.....	.....	.....	.....	
Schenectady and Troy	20½	....	20½	659,668	32,100	.....	.....	..	677,671	.....	.....	.....	120 a 121	
Saratoga and Schenectady	22	....	22	331,036	15,000	.....	.....	..	47,025	.....	.....	.....	.....	
Summit	2	....	2	.....	.....	.....	.....	..	57,018	.....	.....	.....	.....	
Schuylkill Valley	14	....	14	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Shamokin	22	....	22	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Swatara	4	....	4	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Seabord and Roanoke	....	....	76½	1,519,110	20,460	.....	.....	..	.....	.....	.....	.....	.....	
S. Carolina Main Stem	136	....						..						
Columbia Branch	....	68½	242	5,943,678	24,500	.....	.....	..	800,073	308,802	401,271	.....	.....	
Camden Branch	....	37½						..						
Sangamon and Morgan	56	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Taunton Branch	....	....	11	305,085	27,600	250,000	.....	35	108,101	90,485	17,615	.....	.....	
Tonawanda	43½	....	43½	974,865	22,400	.....	.....	..	218,301	.....	.....	.....	.....	
Troy and Greenbush	6	....	6	273,625	45,900	.....	.....	..	60,055	.....	.....	.....	.....	
Tuckahoe & James River	4½	....	4½	69,322	14,999	.....	.....	..	.....	.....	.....	.....	70	
Tallahasse and Port L.	....	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Tuscumbia and Decatur.	....	....	44	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Utica and Schenectady	78	....	78	3,161,688	40,500	.....	.....	..	.....	.....	.....	.....	.....	
Vermont and Mass	69	....	69	.....	.....	.....	.....	..	795,239	.....	.....	10	123a125	
Vermont Central	121	....	69	In progress.	.....	.....	.....	55	.....	.....	.....	.....	31	
Vicksburg and Clinton	....	....	46	.....	.....	.....	.....	..	.....	.....	.....	.....	47	
Western	117½	....	117½	7,975,452	67,700	.....	.....	..	.....	.....	.....	.....	7¼	
West Stockbridge	2½	....	2½	41,515	15,000	.....	.....	83	1,332,068	.....	.....	8	101½	
Worcester and Nashua	45	....	45	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Wrightsv, York & Gettys.	....	....	13	.....	.....	.....	.....	48	.....	.....	.....	.....	50a51½	
Whitehaven and Wilkes.	....	....	20	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Williamsport and Elmira	....	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Westchester Branch	....	....	10	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
West Feliciana	....	....	24	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Winchester and Potomac.	....	....	32	509,415	15,919	.....	.....	..	.....	.....	.....	.....	.....	
Wilmington and Weldon	....	....	163	.....	.....	.....	.....	.	.....	.....	.....	.....	.....	
Westminister Branch	....	....	10	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Western and Atlantic	....	....	100	In progress.	.....	.....	.....	..	.....	.....	.....	.....	.....	
York and Maryland Line.	....	....	21	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	

AMERICAN RAILROAD JOURNAL.

Saturday, September 29, 1849.

A New Plan for Building a Railway to the Pacific.

In a few weeks two large conventions are to be held on the Mississippi river, one at St Louis and the other at Memphis, to consider the subject of a railway from these respective points to the Pacific. They will constitute the first grand demonstrations in reference to this measure that have yet been made—and their action will impart an additional impulse to the public mind, which now demands the immediate commencement of this great work; and as we have reason to expect that the next Congress will take definite action in relation to it, any suggestion or plan which may aid in securing the adoption of the best mode by which the work may be accomplished, becomes valuable. For the purpose, therefore, of rendering such aid as may be in our power, we respectfully submit to the public consideration the following

PLAN FOR BUILDING A RAILWAY TO THE PACIFIC.

In the first place, we premise, that we believe it to be the wish of every citizen among us, that, if possible, the road should be built with the proceeds of the sale of the public lands, and that so strong is this feeling, no other source will be resorted to till these shall be found to be inadequate. We shall, therefore, assume this point, that the public lands are to furnish means to build the road.

In the second place, we believe that the public mind is equally decided upon the point, that the general government should have as little connection as possible with the construction and management of the road; for the reason, that government cannot directly construct it wi hout an enormous waste of money, and that if under its immediate control, it might be made the instrument of vast political power, consequently of corruption. And as it is in harmony with the genius of our institutions, to entrust only so much power to our government, as may enable it to accomplish the objects for which it was instituted, it will be only as a last resort, and not till every other plan shall be found impracticable, that our people will authorise the general government to undertake directly the construction of this work. On both of these points we sympathise fully with the popular sentiment of the country, and we believe that the work is in fact practicable only when built upon a plan which is in harmony with the popular will.

In the first place, therefore, we propose that government should set apart the proceeds of the sale of the public lands, from and after the first of January next, to constitute a fund for the building of a railway from the Mississippi to the Pacific.

In the second place, the general government should authorise the several States to appoint one of its citizens, who shall constitute a board of direction of said road, and who, and their successors, shall for certain purposes, be constituted a body corporate, and to a certain extent, amenable to the laws of the United States, and such states through which the road shall run, both for the protection of the rights of individuals as well as the rights of said corporation, and shall possess those powers in the construction and management of the road, as are usually possessed by the directors of railroads thro'-out the country. The term of office shall be so fixed by the general government, that one-third or one-fourth of their number shall go out of office each year, their place to be supplied by the several States in which the vacancy occurs. The appointing power of the directors shall always reside in the States, each of which shall appoint an equal number, who on their appointment being duly certified, shall be commissioned by the President, and shall receive a stipulated sum for their services, to be paid out of the road fund. The road when completed shall always remain the joint property of the States, to be forever managed by a board of directors appointed as aforesaid, and only such rate of toll shall be charged as may suffice to run and maintain the road.

Such are the general outlines of the plan. We propose now to consider it somewha in detail, examine how far it is in harmony with the propositions which we laid down in the outset, and state some of the arguments in its favor, and endeavor to remove such objections as may be madeto it.

This plan, in the first place, completely precludes all possibility that the road should be made an agent or instrument of political influence and corruption by the general government, from the simple fact, that this power would possess no improper control over the money to be expended in, or over those entrusted with, the construction and management of the road. It would be equally impossible for the several States to exert any improper influence. The great political parties into which this country is divided, are so nearly equal, that if the State governments should appoint their political adherents, the political character of the board would always be nearly balanced, and constantly changing, to correspond with the oscillating state of popular opinion, which would render any scheme for political aggrandisement or intrigue, requiring any length of time to mature to carry out, impossible. But when we take into consideration that each State would be more interested in the completion and proper management of the work, than in any improper collateral or incidental advantage to be derived from it, and the laudable ambition that each would have of appointing its best men to the direction, and of making itself felt through the influence of high scientific and moral qualities of its representatives, than by low intrigue; and the perfectly independent position of the directors, and the absence of all power to abuse their trusts, or temptation to do wrong, we cannot conceive how any body of men can be constituted, with whom may be so safely trusted the vast responsibilities of this great work. This plan then, we think, is more unobjectionable than any other proposed, on account of the political influences to be feared from it; and has this to recommend it, that it makes the interest of the directors and the public identical—while in all others, public and private interests come into direct collision.

The proceeds of the public lands, after being paid into the treasury, should be held in trust by the government, as a fund for the road. Until this fund is wanted, government, to prevent a large accumulation of money in the treasury, should be authorised to use this money for its ordinary expenses, for which the road should have credit to the amount so used, to be returned whenever wanted. If thought expedient, the directors might be authorised to withdraw certain public lands from sale for a given time, either upon the line of said road, or in any other place, as may have a great prospective increased value, for the purpose of increasing the means for the work. But all land so reserved should be sold at public auction; and the money for these, and all the money in any way applicable to the road, shall be paid into the treasury, to be drawn out only in a legal manner. If it should be found that in the progress of the work, the public lands did not furnish means sufficiently fast for the work, then government might advance such deficiency, charging it to the public land fund to be eventually reimbursed from this source. This plan, therefore, proposes to draw the means for the road from the proper source, and would to a certain extent create the necessary means from the increased value it would impart to the lands through which it would run; the proceeds of which, as well as of all the other public lands would, we think, furnish the means as fast as they could be economically expended. But in case they should fail to do so, the additional aid furnished by government, anticipating such revenue would always secure the prosecution of the work.

The source of this fund, the public lands, would remain under the management of the general government. All lands the value of which would be affected by the road, should be sold at auction. As far as practicable all the work on the road, and the furnishing of all material should be let at auction, to be paid for when the contracts are executed by drafts upon the treasury of the United States, vouched, and as the United States would always have the custody of this fund, there could by no possibility be any loss, or misapplication of it.

The road, when completed, would represent a great fund, in which each State would be equally interested, and from which, by the low rate of its tolls, each would derive as substantial benefit, as if it received in money its proportion of the actual difference between the amount charged by this and dividend paying roads, by the diminished cost of articles of consumption carried over it, and the great cheapness of travelling. The railway systems of each State would be gradually connected with this as a great trunk line, and thus the bonds of our union would receive all the strength that mutuality of interest could give, while the care and management of this great work, requiring the co-operation of all the States, would promote a more intimate acquaintance between the different sections of the country—a more frequent interchange of the kind offices and hospitalities of life—and, more than all, an uniformity of ideas, which is the true bond of all political union.

The selection of the route we think should be left to the directors of the road. In deciding this point, the representatives of each State would be just as likely to carry out its wishes, as its delegation in Congress, and would be much better qualified to decide upon the claims of rival routes than members of Congress, for the reason that the board of direction would probably be composed of men of experience in railway affairs, and who would have before them, from inspection of the routes, and from the results of actual survey, the proper evidence upon which to base a decisson—evidence that members of congress cannot be supposed to possess.—Should Congress assume the decission of route, it would not only be much more likely to decide wrong than the directors, but from the great benefits it is supposed the road will confer upon the section through which it shall run, and the point of its eastern terminus, this decission would not probable be effected without much political intrigue and corruption—all of which will be avoided by the above plan.

The work would be of too great magnitude to be under the direction of one engineer. A corps of engineers should be constituted, each one of which should have the care of particular sections of the work. This corps should hold regular meetings, at which questions of great magnitude, arising in the progress of the work, shall be determined by the decission of the majority. Each engineer therefore would be able at all times to avail himself of the ad-

vice and counsel of his brethren employed on the road. This would give us every assurance that we could have that the *engineering* of the road would be done in the best manner possible.

The board of directors should annually hold a meeting at the seat of government, on the 1st day of January, and at other times if necessary, for the transaction of the business of the road. Its meetings should always be public, and all its proceedings, as well as everything relating to the construction of the road, should be made a matter of record—a certified copy of which should be deposited with Congress. The directors should make reports of their proceedings direct to Congress, at such times and as often as this body shall determine. Congress should also have the right of determining what amount of compensation should be paid to directors, and all persons employed upon the road, and should have the power to remove any director for cause shown, and should generally have such supervision over the road, and over the action of the directors, as may be necessary to protect its own right and those of the public, and best conduce to the interest of the road.

A work like the one proposed, should be constructed in a manner to correspond with the office it is to perform. True economy will dictate liberal expenditure of money in the outset on the permanent works on the road, such as grading, bridging and stone work of every kind. All these should be as lasting as the ground over which the road will run. A most comprehensive plan will be required in every thing that relates to the road and to the facilities for the accommodation of its vast business, to meet all these wants, such as only can be matured by men of distinguished ability and experience, executed by no less a power than the general government. It will be a work for ages, and all its characteristics should harmonise with its design. Those entrusted with its execution will have more regard to its real and permanent value than to the haste with which it can be opened for use, while if it should be made a subject of private enterprise, the great object will be to open it in the shortest possible time and at the least expense; so that the imperfect manner in which it would be built, would render it unfit for any useful end.

Finally, this plan would secure the construction of the road sooner than any proposed, or any that we have been able to conceive. The board as a corporate body, would have a perpetual existence, tho' the term of office of each member would be limited. The directors, therefore, could have no temptation to prolong the completion of the work for the purpose of the longer remaining in government employ.—They would, on the contrary, have every motive to press the work forward with all the vigor consistent with the best economy; and as they would always have ample means at their control, and as the large number of which the board would be composed, would allow the appointment of numerous sub-committees to superintend the different sections of the work, and the various matters connected with it, we cannot conceive of any organization which would be so effective to the completion, at the earliest moment, of this great work.

Such are the general features of the plan which we submit to public consideration. We have not room, neither is it necessary that we should, at the present time, develope its details at greater length. They will naturally suggest themselves. If upon examination the plan should be found impracticable, it may render some service by turning public attention in a direction that is so; if on the other hand, it possesses merits, we have no doubt they will receive such consideration as they deserve.

H.V.P.

Cleveland Ohio.

A vessel of about 400 tons burthen, called the Eureka, is loading in this port direct for San Francisco, having obtained permission from the British Government to pass through the St. Lawrence.

New Hampshire.

The Belknap Gazette says there is a fair prospect that ten miles more of the Montreal Railroad will be put under contract very soon. This will carry the road to Warren Village, fourteen miles from Haverhill.

Ashuelot Railroad.—We learn that at a recent meeting of the company, held at Keene, the contract for a lease of the Ashuelot Road to the Connecticut River railroad company, "on terms that shall secure seven per centum per annum for ten years on the investment of stock in the Ashuelot railroad corporation," was approved and confirmed, and the President empowered to execute all papers that the details of the arrangement may require.

This movement undoubtedly secures the construction of the road, and we may expect soon to see the lines of the upper and lower Connecticut united, and the whole brought in direct connection with this city.

In another part of our paper will be found a plan for a railway to the Pacific. We have given the subject some attention and whether we have developed anything valuable or not we leave to the public to judge. Our only object has been to promote this great measure. If it shall be found that we have done so, this will constitute all the reward we seek. If not, we shall still have the consciousness of having acted with a view to the good of this great work—even if we have not been able to aid in its construction.

To the Chamber of Commerce, New York:

Boston, September 10, 1849.

Gentlemen,—We observe that you recommend Whitney's plan for a railroad to the Pacific. We had previously understood that you were in favor of some plan *which would insure the use of the road to the present generation.* Will you be so kind as to explain to us how the use of the road can be obtained for the present generation by Whitney's plan?

He proposes first to hold ten miles of road, and then (by the sale of the land) to create the means of building the next ten miles. May we not safely assume that it will take him at least, one year to build the first ten miles, or more; then, one year more to sell the land; then three years more to get his pay? Thus at the end of five years he will be prepared (money in hand) to build the next ten miles.

According to this ratio of five successive years, for each successive ten miles, it will take 850 years to make 1700 miles of railroad!! If (by a stretch of imagination) it should be said that he will, in a single year, build the first ten miles, and within the same year sell the land and get his pay—even then, it will take 170 years to build 1700 miles of railroad. An early reply would oblige

Yours, respectfully,

Wm. Ingalls,
E. H. Derby,
J. C. Dunn,
P. P. F. Degrand,
O. D. Ashley,
} Committee.

In a recent number, we expressed the mortification we felt, that so distinguished a body as the New York Chamber of Commerce should give its sanction to Mr. Whitney's plan for a railroad to the Pacific, without giving any reason for such approval, or arguments to show its practicability. The action of this body, it seems, is as unsatisfactory to others as to ourselves. It has now an opportunity, in reply to the above letter, of giving its reason for its support of Mr. Whitney's scheme, and we look for such reply with no little interest.

Railway Conventions at St. Louis and Memphis.

We give below the addresses of the Committees of Invitation of the friends of these respective routes, to the people of the United States. The address of the St. Louis committee we have been compelled, for want of room, to abreviate somewhat. We await the action of these conventions with much interest, and hope that it may advance us much nearer the commencement of this great work.

THE PEOPLE OF ST. LOUIS,

to the People of the United States.

The grand problem of ages, in regard to a Western route to Asia, is about to be solved. Recent events in the development of the great designs of a wise and good Providence, setting aside previous theories, have precipitated the result, and made it simple, practical and inevitable.

The acquisition of vast teritories in the interior, and upon the western coast of the Continent, and the removal thereto of such numbers of our people, as to authorize the formation of new States within a year, render the immediate resort to the means of sure and easy intercourse, and continued connection with them, matters of overruling necessity.

The consideration of these great objects, is the purpose of the national convention to be held in the city of St. Louis, on the third Monday of October next, and to which it is the design of this address to invoke the earnest attention of our fellow citizens throughout the Union.

Reserving for another occasion a more full expression of views and facts in support of the hints we have briefly thrown out, we now, in a spirit of patriotism and fraternal kindness, embracing all sections and parties, cordially invite our fellow citizens throughout the Union, to meet us in the proposed grand national convention, for the purpose of seriously deliberating upon this great subject.

We, therefore, respectfully invite delegates from every State and Territory of the nation. Laying aside for the moment, party and private engagements, we bespeak from all parties, a day in union for the general good. We ask every district to send its representatives—that we may have them from the mountains and from the plains, from the cities and from the country, from the hills of New England, and from the Savannahs of Georgia, that they will come to us from the north and the south, from the east, and even from the west; pouring in upon us by all the numerous avenues of conveyance which converge at this point, so that the HOSPITALITY of St. Louis shall rejoice in the fullest exercise and enjoyment of its means; and that a quickning voice may go forth from the assembled mass that shall give the great measure of American progress assurance of its triumphs.

(Signed)

M. Kennett, Thomas Allen, Thomas B. Hudson, M. Tarver, Henry Kayser, A. B. Chambers, R. Phillips, John O'Fallon, Edward Walsh, John F. Darby, J. M. Field, L. V. Bogy, G. K. Budd, N. R. Cormany, John Loughborough, Chas. G. Ramsey, Joseph C. Meyer, John Withnell, George L. Lackland, J. B. Brant, Thos. D. Yeats, Sam'l. Gaty, O. D. Filly, A. Ohlhausen, V. Staley.

To the People of the United States.

Memphis. Sep. 1, 1849.

A direct Western outlet to India from America and Europe, for more than three centuries an object of great magnitude with civilized nations, is now within our means of accomplishment by constructing a central railway from the Mississippi river to the Pacific Ocean.

To aid the work, a convention of the people of the United States was called by a sister State to meet in Memphis on the 4th July, 1849. The citizens of Memphis hailed with delight this new enterprise, as characteristic of the progressive spirit of the age,

and called for by high considerations of national import. In mass meeting, they appointed the undersigned a committee, charged with the duty of addressing their fellow citizens of the United States upon this important question. In discharge of the duty assigned us, we have adverted, in a previous address, to such prominent advantages, agricultural, manufacturing, maratime, military, commercial and national, as to us seemed obvious, and the people of the *whole country*. North, South, East and West, were invited to take the question under consideration, and send forth their delegates to meet us in council.—The response to our solicitations, coming up from the public press of the country, from eminent statesmen, from distinguished citizens of all parts, and from every section of the union, and above all from the mass of the people in all the States, was such as to justify the assumption that the work can, must, and will be done. The ravages of the cholera in the South and West, in June last, compelled the postponement of the convention from the 4th of July to the 23rd of October next. We are happy to say that the cholera has now entirely disappeared from the South and West, and the health of the country is completely restored. We again invoke the aid of our fellow citizens. We invite every town, village and hamlet in the United States, to send forth their delegates, and in behalf of the citizens of Memphis, we tender to all who may honor us with a visit a most cordial welcome.

Henry G. Smith,	James Conquest Gross,
Lewis Shanks,	James Penn,
Levin H. Coe,	Jacob Farrington,
Wm. T. Brown,	Edwin Yerger,
F. P. Stanton,	Miles Owen,
Seth Wheathey,	George W. Smith,
Spencer Jarnagin,	F. A. Cossitt,
Robertson Topp,	Edwin Hickman,
Samuel Bond,	David Park,
E. J. Carrell,	James Young,
Leroy Pope,	T. S. Ayres,

Southern Manufactures.

The following statistics, in relation to the Vancluse company in South Carolina, are worthy of the most attentive consideration During the year 1848 the wheel ran 283 1-2 days and consumed 367,404 lbs. of cotton, costing 6 cents, (7,388 mills per lb.,) the total of which was $24,758 81. The amount manufactured was 71,614 pounds of yarn, worth 14 cents per lb., and 290,789 pounds, or 591,579 14 yards of cloth, netting 7 cents per yard. The following details exhibit the various outlays and receipts:

6,859 1-4 days picking, at 6,175 mills per lb.,	$2,268 39
7,922 days spinning, 6,938 mills per lb.,	2,547 37
2,246 " spooling and warping, 1,406 mills per lb	485 98
1,450 1-4 days dressing, 2,131 mills per lb.,	630 24
569 days drawing in, 0,361 mills per lb.,	187 30
4,937 3-4 days weaving, 9,360 mills per lb,	2,768 64
562 days trimming, &c. 1,164 mills per lb,	344 34
1,114 days hnk'g yarn, 4,953 mills per lb.,	354 75
840, 3 4 days machinist with roller-cover and all extra work, 1,509 mills lb...	572 90
743 gallons oil,	903 03
Contingencies which include materials, commissioners insurance upon $20,000	4,123 49
78 barrels of flour for sizing	333 20
Transportation on yarn and cloth,	1,416 73
48 reams of paper,	82 80
Interest on capital [$50,000] 7 per cent,	3,500 00
Net profits above all cost and interest as above	7,826 81

Total cost of cloth per lb., 12 cents 4,999 mills, or 6 cents 2,499 mills per yard. Total cost of yarn, 11 cents 6,322 mills per lb. Capital factory, and buildings, $30,000; floating capital, $20,000—$50,000.

The above facts demonstrate how valuable manufactories are to any country, especially to those where raw material is to be had without the expense of far transportation. The cost of the yarn to the consumer was $10,026 10, and the cotton cloth $11,410 53—making an aggregate of $51,436 68; which sum, *minus* the cost of the raw material, leaves a balance of $26,676 82, to reimburst the cost of labor interest on investments, profits, &c. The section of the country, therefore, in which is the Vancluse company, had, during the year, been enriched by $26,677 82.

Scarcely a factory in the whole north has worked to such advantage, on account of the fact that at least 20 per cent. is added to the cost of the raw material by the transportation thither, and that labor is more expensive. The lower the price of cotton, the greater becomes this per centum of charges, freight rarely or never varying. The same company will here serve us as a further illustration. In 1848 the cost of cotton at Augusta was 6710 cents per lb., amounting to $23,758, to which, if we add 20 per cent. for transportation, we have an aggregate of $29,709; adding again ten per cent. for wastage we have $32,679 as the cost of the raw material to any northern factory. This cost, after deducting the freight of the articles sent south to pay for the raw material, may be estimated at 15 per cent., making the total yet higher by $1,980. The total cost would then be $30,699—evidently $4,941 more than it cost at Vancluse. An appreciation of these immense advantages is what is rapidly converting Georgia into a manufacturing State, and at the same time improving her agriculture by supplying a home market. The *data* made use of above were drawn from the American Agriculturist.—*Washington Republic.*

Relaxations in Science.

My friend Alfred W. Craven, Esq., Chief Engineer, having invited me to accompany the Common Council of New York and the Commissioners of the Croton Aquaduct on their yearly inspection of the Croton works, the visit leads me to submit to the readers of the Journal the following remarks on the Croton waters. While thanking the Common Council for their hospitality, I have at the same time great pleasure in acknowledging my obligations to the sound practical experience and thorough scientific views by which my worthy "brother of the bridge," Mr. Craven, has directed and sustained my curiosity in the very interesting subject of out examination.

The Croton weir or dam, crossing the river in a straight line from bank to bank, forms the lower border of the Croton Lake. This spot is the scene of the following strange legend told to Mr. Craven, word for word as it stands here, by one of the party to this year's examination of the aquaduct: During the examination of 184—, the good cheer of the Common Council had on the first evening sent the whole party of inspection very comfortable to bed. The Engineer being under the influence of sleep-walking or some other influence leading to the same result, left his room in the middle of the night; and in order to enjoy more fully the romance of the silent moon, rowed out upon the lake. After a while he rested on his oars, the boat drifting under the deep shadows of an over-hanging grove. Listless he sat at first;—but suddenly his whole sense seemed drawn towards a particular point on the moonlit water; and as he continued to gaze, the blood ran thick and heavy to his heart. But see! What is that cloud-like form rising from the lake? It walks—its foot touches the water as softly as a snow flake. Strange sight! It seems a cloak of mist wrapped like a winding sheet round a venerable man. Tall and erect in his form. His locks stream back from his temples; and falling over his shoulders, appear white as the wreathing foam. A coronet like the rainbow in colors and brightness, raises above his forehead—a forehead so impenetrably deep, and calm and bright. His eyes are beaming soft and brilliant as stars reflected in water. His mantle surpasses the blonden gauze:—it is white, thin, impalpable as the morning mist. He stands, the bright moonlight thrown back in all its refulgance from his face. He speaks: the dark grove, the silent hills, the placid moon itself takes up the sound; and tho' 'still, small' whispers, yet each word loud as a water drop in a cave sit the echoes of the dreamer's heart, ringing:

"Who art thou, child of Earth?"

"Spirit, I am an humble student of the will of Nature."

"Then welcome—welcome to our domain."

He moved towards the dreamer; and as he passed into the shadow of the wood his brow, his cheeks, his eyes, his very lips blackened.

"Who art thou, spirit?"

"Croton, my friend, son of Oxygen and Hydrogen. I was stolen from the country where my father rules a boundless domain, by that high and brilliant potentate Sol. He placed me under the care of a tribe of Nubeans, those gypsies of the air, who, wandering on their devious way, have been arrested by the Peaks, those time honored wardens of the ancient Hills, by whose kindness I have been brought to this place, where I now rule over a kingdom tributary to my father."

"Most excellent Croton! May your honest face sparkle for many a day to come at the festive board of New Yorkers. I congratulate you, benevolent Prince, on your 'Holy alliance' with my fellow men. The intimate connection of your domain with that of our noble city must exert such a marked influence on the constitution of New York that I must pray your indulgence for inquiring into your more prominent laws. Tell me, benevolent Patriarch, whether your government is Monarchical or Republican?"

"Monarchical, child. The grades of society in my realm are innumerable—the upper classes pressing as among men on those next below, and so on until the lowest class, generally grovelling absolutely in dirt or mud, becomes *loaded with the accumulated burdens of all above it.* A *particle* is the name given in our language to an individual: each of these is surrounded with certain moral rights, within which no power on earth can drive him—to speak figuratively, *he is absolutely incompressible.* The national character in this respect has been exhibited very strikingly in the case of a certain crowd of particles confined within a jar of brass, and though charged with a great force, the honest fellows rather than yield a pin's point submitted to be forced through the very pores of the metal. So watchful is a particle or a community of particles of its moral rights, that when a force is brought down on it at one point, taking the alarm generally, it puts forth an exertion equal to the force; and does so at all points of attack. Mathamaticians describing our character would call this equality of resistances at all points of a particle 'Quaquaversas pressure."

Pray, most excellent Croton, is there among your people any such law as that which we call the 'Hydrostatic Paradox?'

It is this: on state occasions our throne is elevated far above the general community, and is connected with a thread of members of the upper classes. This elevated body of nobility is sustained of course by the lower classes immediately under them; and these in order to maintain their social existence put forth an upward resistance equal to this attempt to crush them: and apprehending a like assault on all sides, make the same exertion of defence backwards and forwards and downwards. Their immediate neighbors are excited by this exhibition of force; and sticking for THEIR rights, stand defensive on every hand with a force equal to the trespass on them. An illustration of the Quaquaversas law of which this Hydrostatic Paradox is but a sub-division; is seen in the destruction of the earthen dam

that had been constructed yonder. Indignant at the outrage put upon the man whose ability brought about my connection with your city, a man who, after lavishing the fruitful resources of his intellect and acquirements in perfecting the conditions of a treaty so difficult and delicate, is put aside without reward, without honor.—Indignant, I say, at the ill-treatment of one who knew me well, Major Douglass, a gentleman and scholar, I ordered a party of particles to effect a lodgment in that embankment. They did so—the lowest particle bearing all the burden of the grades above him, threw out against the dam the same amount of resistence as that by which he maintained himself under the burden pressing on him from above. The dam was unaqual to the force—it gave way to my sturdy particles, and Major Douglass was in part avenged.

You are indeed a constant friend.—May I ask you, most lucid Croton, how you dispose of your surplus population—at what rate you transport them to lands beyond yonder weir?

Our legislators I confess are at fault to lay down a general law to conform exactly in this case with the social conditions of my subjects. To give you the best approximation to the truths, I must convey my meaning in a language you understand:—the *algebraic formula generally*, for, as you call it *the discharge over weirs* is this:

$$2 = \tfrac{2}{3}\, m\, b\, h \sqrt{2\, g\, h}$$

where g is the height, a heavy body falls through in a second of time, (4·90 meters, or 16·10 British feet), h, the height of the general level of the lake above the water-board, or lip of the weir; 2, the quantity discharged, as you would express it; and in a co-efficient to be found by experiment. This co-efficient is estimated differently by different parties; but in truth is different for every variation in the head of the lake, and the width of the weir. D'Aubisson's experiments are very near the truth, and will give you a good approximation generally to the manner in which I dispose of my surplus population: For weirs, the full width of my 'channel' (as you term it), m may be taken at 0·665; but when only a third of the width, he gives m the mean value 0·60. These dimensions imply the use of that measure which the French call the meter; 9·81 of which are equal to 32·22 British feet. Dr. Robinson, who knows a good deal of our peculiarities as a people, has reduced the formula of D'Buat, which is very near the truth, to the following expression for English feet:

$$D = 11{\cdot}4172,\ l\ H^{\frac{3}{2}}$$

D being the quantity of water discharged in a second of time; l the length of the waste-board; and H the depth of the waste-board below the surface of the water: Smeaton, well as I recollect, and I knew him at the Eddystone Lighthouse, when a wild youth I sported on the green fields of my father—generalises Dr. Robinson's formula in this way: *Eleven and a half times the square root of the depth cubed multiplied by the length of the waste board, is the quantity discharged per second in English inches.* I speak according to your ideas of my kingdom, though of course they seem to me exceedingly ludicrous.

Thank you, most delightful Croton.—May I still trespass an your kindness by enquiring the conditions under which you allow your subjects to pass through the culvert or waste gate under this weir?

I shall be most happy to give you any information in my power.—To express myself in terms to suit your understanding, I must say generally, the discharge of any two different apertures in a weir are to each other in the compound ratio of the areas of the apetures, and the square roots of the heights of the water above them. The experiments of Bossuet, Mitchelloti, Smeaton, etc., show the following conditions: that the quantities passing in equal times through different apertures (the altitude of the water being the same for each) are to each other nearly as the areas of the apertures; and that the quantities passing in equal times through the same orifice under different heads of water, are to each other as the square root of the respective heads of water above the centre of the orifice. Those experiments show also that friction has a considerable influence on discharge; that on this account the smallest orifices discharge proportionably less than large ones of even the same figure, under the same height of water; and that, for the same reason, among orifices of equal area under the same height of water, the greatest quantity is discharged by that which has the smallest perimeter. But to give you a more particular view of the conditions of the case:—the velocity with which the water escapes multiplied into the area of the orifice would appear to be the amount of discharge; but, owing to the impatical temperament of particles, each moving towards the aperture in anxiety to anticipate his neighbor, such a rush takes place at the side of the aperture that like a body of your fellow-men attempting to rush simultaneously into a theatre the moment the doors are opened, a good deal less passes through than the doors in the case of men, and the aperture in the case of my people, can admit. This rush in the instance of particles is known since the days of Sir Isaac Newton, as the 'vena contracta' or contraction of the fluid veins. Now this and the question of velocity are the two considerations involved in a definite reply to your inquiry; and as I cannot just now recollect off-hand the particulars of this case, I must put you off for the present with the foregoing general remarks. I may, however, hint the likelihood of your being informed fully on the question in some of the forthcoming numbers of the American Railroad Journal—a paper to which I, as all intelligences should be, am a regular subscriber.

Here the phantom waved his hand in friendly adieu to the dreamer. Slowly he sank into the water, and at last, seeming like a bubble glittering in the moonlight, floated towards the edge of the weir, where breaking into airy sparkles, he disappeared for ever. The strangest feature in the whole story is that the dreamer being in the following morning found in his room, he felt a certain uneasiness in his stomach, and though seemingly stupified by the overnight's rencontre with the king of liquids, he could tell the particulars as clearly and succinctly as they are told here.

M.B.H.

ALBANY AND BUFFALO RAILROADS.—Four Trains daily, Sundays excepted, viz: Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m. Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours. Arrive from Buffalo, 7 p.m., 2½ a.m., 12½ m., 3½ p.m.

Passengers by the *Express Train* reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall, Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12½, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The *Eastern Trains* leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage *free* between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y
Albany and Schenectady Railroad Co.
Albany, August, 1849.

To Contractors.

BLUE Ridge railroad.—Proposals will be received by the undersigned at his Office in Brooksville, Albermarle county, Va., until the 1st of October next, for the construction of the tunnel through the Blue Ridge, together with the deep cut and embankment connected therewith at each end.

The tunnel will be 4,260 feet long, 16 feet wide and 20 feet high, with a ditch on each side: it will slope eastwardly at the rate of 66 ft. to the mile, and pass 700 feet below the top of the mountain.

Proposals will be received either for the whole or for one-half, it being distinctly stated, in this case, whether the Eastern or Western half is bid for.

Proposers are requested to examine the localities before bidding, and will obtain from the undersigned all necessary information.

The payments will be CASH, with a suitable reservation till the completion of the contract. The best testimonials and an energetic prosecution of the work will be expected,

Printed forms of proposals will be furnished on application to the undersigned.

By order of the President and Directors,

Proposals will also be received until the 15th of Oct. next for the *construction of the Railroad* on the Eastern side of the Mountain, about eight and a half miles. It comprises much heavy work and a Tunnel about 720 feet long.

C. CROZET,
Engineer Blue Ridge Railroad.
Brooksville, July 26, 1849,

Patents for Inventions.

THE Subscriber offers his services for the procuration of Patents in the UNITED STATES; in the CANADAS and other British Colonial possessions; in the SPANISH, FRENCH and other WEST INDIES.

ALSO IN EUROPE.

ENGLAND WITH COLONIES; SCOTLAND and IRELAND. FRANCE, BELGIUM HOLLAND, etc.

☞ The foreign patents are procured through special agents, established by, and solely responsible to this establishment. At this office may be obtained all documents required in patent business; *Deeds, Conveyances, Agreements, Assignments*, etc. Counsel given on questions involving points of law in Contested Cases, and written opinions, on the title claims, etc., where the validity of a Patent is questioned.

MECHANICAL ENGINEERING DEPARTMENT.

Drawings of all kinds furnished to parties who wish to prosecute their own patent business. Accurate working drawings for Pattern Makers or for making Contracts with Manufacturers; calculations and drawings made, for constructing difficult and complicated machines or parts of machines. Draughtsmen furnished to take Drawings of Mills, Mill Sites, and Machinery, in any part of the country.

Pamphlets, containing full information on the above subjects, furnished gratis.

JOSEPH P. PIRSSON, Civil Engineer,
Offic, No. 5 Wall St.

Plumbago, or Black Lead,

BLACK LEAD IN ITS CRUDE STATE, AND Black Lead Paints, prepared for various purposes. This paint is peculiarly adapted for the covering of all kinds of iron railing, or iron work wherever exposed; such as railroad bars, anchors, bolts for vessels, etc.—It makes the most durable paint to protect woodwork from moisture, and the indistructable nature of the body of it peculiarly fits it for covering the inside of depots, roofs of buildings, and all wood work exposed to fire.

The mine from which this article is taken is near Raleigh N. C. It has been examined by many of the most scientific men in this country, who all concur in pronouncing it of the best quality. In the fourth vol. of the American Journal of science, Professor Silliman speaks of it in the following manner. "The Plumbago from North Carolina is of a very fine quality and appears well adapted for pot & crayons." Professor Dewy speaks of it "as the finest he ever saw." Professor Olmstead, now of Yale College in his geological report of the State of North Carolina, Page 5 says.—"Not long since I received a letter from a gentleman in Vermont who contemplated setting up the manufacture of Black Lead Pots or Crucibles, requesting some particulars respecting this Plumbago, having been informed on the highest authority, that it was the best that could be procured within the United States."

It is a very fine article and superior for Pencils also for Crusibles, Pots etc., when the composition of silicious minerals is properly made to suit it, and may be had in any reasonable quantities of the subscriber on liberal terms at Raley'd North Carolina or at James Holdene 55 West St. New York.

Sep., 7th 1849. Richard Smith,

NOTICE TO

Superintendents of Railroads.

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE,
Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE,
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York.
34tf

Engine and Car Works,

PORTLAND, MAINE.

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of $250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON,
Superintendent.

JAMES C. CHURCHILL,
General Agent and Clerk.

Illustrated Scientific Works.

LEA AND BLANCHARD, Philadelphia, publish the following important works on various branches of Practical Science. They will be found exceedingly low in price, while their mechanical and typographical execution are of the best kind.

I.

Principles of mechanics applied to machinery and engineering by Julius Weisbach. Translated by Professor Gordon of Glasgow, and Edited by Professor Walter R. Johnson. In two very handsome octavo volumes, with 872 illustrations on wood.

From Charles H. Haswell, Esq., Engineer in Chief, U. S. N.

The design of the author in supplying the instructor with a guide for teaching, and the student with an auxiliary for the acquirement of the science of mechanics, has, in my opinion, been attained in a most successful manner. The illustrations, in the fullness of their construction, and in typographical execution, are without a parallel. It will afford me much pleasure to recommend its use by the members of the profession with which I am connected.

This work is one of the most interesting to mathematicians than has been laid before us for some time; and we may safely term it a *scientific gem.—The Builder.*

The most valuable contribution to practical science that has yet appeared in this country.—*Athenæum.*

Unequalled by anything of the kind yet produced in this country—the most standard book on mechanics, machinery and engineering now extant—*N. Y. Commercial.*

In every way worthy of being recommended to our readers—*Franklin Institute Journal.*

What the "Mechanique Celeste" is to the astronomer, a treasury of principles, facts, and formulæ on which he may draw on almost any and every occasion, that can be conceived to arise in the field either of demonstration or operation—*Methodist Quarterly Review.*

II.

Technology, or chemistry applied to the arts and to manufactures. By D. F. Knapp, Translated by Drs. Ronalds and Richardson, and Edited by Professor Walter R. Johnson. In two very handsome octavo volumes, with 460 illustrations on wood.

One of the best works of moderate times.—*New York Commercial.*

We think it will prove the most popular, as it is decidedly the best of the series. Written by one who has for many years studied both theoretically and practically the progress which he describes. The descriptions are precise, and conveyed in a simple unpretending style so that they are easily understood, while they are sufficiently full in detail, to include within them everything necessary to the entire comprehension of the operations. The work is also carefully brought down to include the most recent improvements introduced upon the continent of Europe, and thus gives us full descriptions of processes to which reference is frequently made in other works, while many of them are we believe, now for the first time, presented in a complete state to the English reader.—*Franklin Institute Journal.*

In addition to the valuable scientific matter contained in the original work, very extensive American additions have been made to it by the editor, which are exceedingly valuable, and of much interest to the general reader. The publishers have spared no pains in bringing out a work of superior mechanical execution and rare excellence, with numerous skilfully engraved cuts, designed to illustrate the various subjects treated in this work. We feel confident that, as a truly useful publication, it will be eagerly sought after and highly appreciated.—*N. Y. Farmer and Mechanic.*

III.

Principles of Physics and Meteorology, by Professor J. Muller, Edited with additions by R. Eglisfeld Griffith. In one large octavo volume, with 550 wood engravings and two colored plates.

This is a book of no ordinary or ephemeral value.—It is one of a series, now republishing in London, on the different branches of science, which from its thorough character and extended range, is much needed in this country. Its design is to render more easily accessible an extensive knowledge of the general principles of physics and meteorology; and the distinguished author has certainly realized the design to a wonderful extent. The subject treated upon are very numerous—statics, hydrostatics, dynamics, hydrodynamics, pneumatics, the laws of the motions of waves in general, sound, the theory of musical notes, the voice and hearing, geometrical and physical optics, magnetism, electricity and galvanism, in all their subdivisions, heat and meteorology. The size is nevertheless convenient—one handsome octavo volume, of six hundred pages—in clear, bold type, and profusely illustrated. In the execution of the illustrations we have rarely seen any thing equal to this American edition.—*N. Y. Commercial.*

IV.

Practical Pharmacy; comprising the arrangements, apparatus, and manipulations of the Pharmaceutical Shop and Laboratory. By Francis Mohr, Ph. D., and Theophilus Redwood. Edited with alterations and additions by W. Proctor, Jr. One very handsome octavo volume, with 506 engravings on wood.

We had scarcely finished a glance at the beautiful London edition of Mohr and Redwood's pharmacy, before Professor Proctor's improved edition of this fine technical treatise, was laid on our table by Messrs. Lea and Blanchard. This work is one which will at once find its place in every laboratory and pharmacetical shop, and is well calculated to recommend new and improved methods of manipulation to both chemists and pharmaceuts. In the absence of highly appointed laboratories and of pharmaceutical instruction which is so general in this country, such works as the present are particularly valuable. The beautiful and abundant wood cuts which adorn almost every page of the book, enter the descriptions of apparatus perfectly plain, and its reconstruction easy even by the tyro. Professor Proctor has long been known to pharmaceutical readers in this country, as the author of numerous and important researches in the Materia Medica, and his additions to the present edition of Mohr and Redwood are frequent and valuable.

The American Journal of Science and Arts.

V.

The Young Millwright and Millers Guide; Illustrated by Twenty Eight Descriptive Plates, by Oliver Evans. Twelfth Edition, with additions and corrections, by Thomas P. Jones, with a description of an Improved Merchant Flour Mill, with Engravings, by C. and O. Evans. In one volume 8vo., with 110 figures on twenty eight plates.

Notice to Contractors.

OHIO AND PENNSYLVANIA RAILROAD.

PROPOSALS will be received at the office of the Ohio and Pennsylvania Railroad Company, in the town of Massillon, Stark county, Ohio, until sunset of Friday, the 28th of September, 1849, for the Grading and Masonry of the line between Canton and Wooster, a distance of about 32 miles. Proposals may be addressed to Wm. Robinson, Jr., President, or Solomon W. Roberts, Chief Engineer of the company.

Drawings and specifications of the work to be let will be exhibited at the office in Massillon, for a week before the letting, by Jesse R. Stranghan, the Resident Engineer of the Western Division.

By order of the Board of Directors.

WM. ROBINSON, Jr., President.

Pittsburg, August 11, 1849.

To Railroad Companies.

FOR SALE—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and *warranted to perform well.* Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price $1,500.

Address J. B. MOORHEAD,
Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia.
September 6, 1849.

Pennsylvania Railroad.

PROPOLALS will be received at Johnstown, Cambria county, Pa., between the 1st and 12th of October next, for the Graduation and Masonry of that portion of the Western Division of the *Pennsylvania Railroad* east of Section No. 54, opposite Blairsville—a distance of 26 miles—embracing a considerable am't of heavy excavation and embankment.

Plans and specifications of the work may be seen at the office, in Johnstown, within the periods above mentioned.

For further information apply to Edward Miller, Esq., Engineer of the Western Division, Summit P. O., Cambria county, J. EDGAR THOMSON,
Chief Engineer and General Superintendant.

Engineer Department P. R. R. Co.,
Philadelphia, Sept. 6, 1849.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849. 6m33

The New York Iron Bridge Co.

LATELY KNOWN AS

Rider's Patent Iron Bridge Co.

THE Company which has hitherto furnished these Bridges, under the patent granted to the late Nathaniel Rider, deceased, have become satisfied that all the principles embraced in their construction, are included in a previous patent, granted in the year 1839, to Col. Stephen H. Long, of U. S. Engineers, and by him designated as "Long's Suspension Bridges," and have therefore made an arrangement with Col. Long, by which they have secured the exclusive right to make and vend these Bridges throughout the whole United States.

The only change consequent upon the new arrangement will be found in the name and style of the Company. The parties composing it being the same, the construction of the Bridges will be essentially the same.

August 4th, 1849. M. M. White, Agent,
au7tf No. 74 Broadway, New York.

ENGINEERS.

Arrowsmith, A. T.,
Buckfield Branch Railroad, Buckfield, Me.

Bancks, C. W.,
Engineer's Office, Southern Railroad, Jackson, Miss.

Berrien, John M.,
Michigan Central Railroad, Marshall, Mich.

Buckland, George,
Troy and Greenbush Railroad.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Davidson, M. O.,
Eckhart Mines, Alleghany Co., Maryland.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
South Oyster Bay, L. I.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

Harry, P.,
Binghamton, New York.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Higgins, B.
Mansfield and Sandusky Railroad, Sandusky City, O.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morris, Elwood,
Schuylkill Navigation, Schuylkill Haven, Pa.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Reynolds, L. O.,
Central Railroad, Savannah, Ga.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Robinson, James P.,
Androscggin & Kennebec Railroad, Waterville, Me.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
Pottstown, Pa.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukie, Wisconsin.

BUSINESS CARDS.

Walter R. Johnson,
CIVIL AND NINING ENGINEER AND ATtorney for Patents. Office and Laboratory, F St., opposite the Patent office, Washington, D. C.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.

Cruse & Burke,
Civil Engineers, Architects and Surveyors,
Office, New York State Institution of Civil Engineers,
STATE HALL, ALBANY., N. Y.

Drawings, specifications and surveys accurately executed. Pupils instructed theoretically and practically at a moderate premium.
May 26, 1849.

Eaton, Gilbert & Co.,
Railroad Car, Coach and Omnibus Builders,
TROY, N. Y.

Hudson River Foundry,
THOMAS & COLLINS,
130 Quay Street, Albany.

To Railroad & Navigation Cos.
MR. M. BUTT HEWSON, *Civil Engineer*, offers his services to Companies about to carry out the surveys or works of a line of Navigation or Railroad. He can give satisfactory references in New York City as to his professional qualifications; and will therefore merely refer here to the fact of his having been engaged for upwards of two years conducting important Public Works for the British Government.

Communications will find Mr. Hewson at the office of the Railroad Journal, 54 Wall Street, New York.

J. T. Hodge,
Eagle River P. O. Lake Superior.

James Laurie, *Civil Engineer,*
No. 23 RAILROAD EXCHANGE, BOSTON, MASS.

Railroad Routes explored and surveyed. Estimates Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.
October 14, 1848. 6m*

James Herron, *Civil Engineer,*
OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE
HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

To Railroad Companies.
—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.
NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, NEW YORK,

Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address E. S. NORRIS.
May 16, 1849.

Manning & Lee,
GENERAL COMMISSION MERCHANTS,
NO. 51 EXCHANGE PLACE,
BALTIMORE.

Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED —'Potomac' and other good brands of Pig Iron.

Samuel Kimber & Co.,
COMMISSION MERCHANTS
WILLOW ST. WHARVES, PHILADELPHIA.

AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.
July, 27, 1849.

IRON.

Railroad Iron.

THE Undersigned offer for sale 3000 Tons Railroad Iron at a fixed price, to be made of any required ordinary section, and of approved stamp.

They are generally prepared to contract for the delivery of Railroad Iron, Pig, Bar and Sheet Iron—or to take orders for the same—all of favorite brands, and on the usual terms. ILLIUS & MAKIN.
41 Broad street.
March 29, 1849. 3m.13

Glendon Refined Iron.

Round Iron,	Band Iron,	Hoop Iron,
Square "	Flat "	Scroll "

Axles, Locomotive Tyres,
Manufactured at the Glendon Mills, East Boston, for sale by GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.
Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES. — The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head From the excellence of the material always used in their manufacture, and their very general use for rail roads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.
JOHN F. WINSLOW, *Agent.*
Albany Iron and Nail Works, Troy, N. Y.
The above Spikes may be had at factory prices, of Erastus Corning & Co Albany; Merritt & Co., New York; E. Pratt & Bro. Baltimore Md

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM 1 1-2 TO 8 INCHES DIAMETER.

These are the ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers
THOMAS PROSSER,
Patentee.
28 Platt street, New York.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
22 South William street,
February 3, 1849. New York.

Iron Store.

THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.
MORRIS, JONES & CO.,
Iron Merchants,
Schuylkill 7th and Market Sts., Philadelphia.
August 16, 1849. 1y33

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.
November 6, 1848.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.
REEVES, BUCK & CO.,
45 North Water St., Philadelphia.
March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,
HAVING THEIR
IRON FOUNDRY AND MACHINE SHOP
In complete operation, are prepared to execute faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills,
Slide, Hand or Chuck Lathes,
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, warranted,
Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best faggotted axle, furnished and fitted up for use, complete

☞Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

☞ Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.

June 8, 1849.

Railroad Iron.

THE TRENTON IRON COMPANY ARE NOW turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to

COOPER & HEWITT, *Agents.*
17 Burling Slip, New York.

October 30, 1848.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.

May 23, 1849.

SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.—The subscriber is engaged in manufacturing spring steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address J. F. WINSLOW, *Agent,*
Albany Iron and Nail Works.

Pig and Bloom Iron.

THE Subscribers are Agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

Iron.

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.
100 " No. 2 do. do. do.
300 " Nos. 2 & 3 Forge do. do.
100 " No. 2 Glendon do. do.
140 " Nos. 2 & 3 Lehigh Crane do do.
100 " No. 1 Pompton Charcoal do.
100 " New-Jersey Blooms
50 " New-Jersey Faggoting Iron, for shafts
Best Bars, ¼ to 4 inch by ¼ to 1 inch thick.
Do do Rounds and Squares, ⅜ to 3 inch.
Rounds and Squares, 3-16 to 1 inch.
Half Rounds, ¼ to 1 in. Ovals & Half Ovals ⅜ to 1½ in.
Bands, 1½ to 4 inch. Hoops, ⅜ to 2 inch.
Trunk Hoops, ¼ to 1½ in. Horse Shoe & Nut Iron.

DUDLEY B. FULLER & Co., 139 Greenwich-st. and 85 Broad-st.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.

May 6, 1848.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burtt, J. & J. Rogers, Saltus & Co., J, B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

FRANKLIN TOWNSEND & CO.
Albany, August 18, 1849.

MANUFACTURE OF PATENT WIRE ROPE and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc, by
JOHN A. ROEBLING, *Civil Engineer,*
Pittsburgh, Pa.

These *Ropes* are now in successful operation on the planes of the Portage railroad in Pennsylvania, on the Public Slips, on Ferries, and in Mines. The first rope put upon Plane No. 3, Portage railroad, has now run four seasons, and is still in good condition.

Railroad Iron.

OF approved T patterns, weighing 56 to 60 lbs. pe lineal yard, made by the best English manufacturers, and under our own specification and inspection. In store and to arrive. For sale by

DAVIS, BROOKS, & CO.,
68 Broad street.

New York, June 1, 1849. t

☞ The above will favorably compare with any other rails.

American Pig, Bloom and Boiler Iron.

HENRY THOMPSON & SON,
No 57 South Gay St., Baltimore, Md.,

Offer for sale, *Hot Blast* Charcoal *Pig Iron* made at the *Catoctin* (Maryland), and *Taylor* (Virginia), *Furnaces; Cold Blast* Charcoal Pig Iron from the *Cloverdale* and *Catawba*, Va., Furnaces, suitable for *Wheels* or *Machinery* requiring *extra* strength; also *Boiler* and *Flue Iron* from the mills of Edge & Hilles in Delaware, and *best quality Boiler Blooms* made from *Cold Blast Pig Iron* at the *Shenandoah Works*, Va. The productions of the above establishments can always be had at the lowest market prices for approved paper.

American Pig Iron of other brands, and *Rolled* and *Hammered Bar Iron* furnished at lowest prices. Agents for *Watson's Perth Amboy Fire Bricks*, and Rich & Cos. New York Salamander Iron Chests.

Baltimore, June 14, 1849. 6 mos

Iron Wire.

REFINED IRON WIRE OF ALL KINDS, Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

ICHABOD WASHBURN.
Worcester, Mass., May 25, 1849.

American and Foreign Iron.

FOR SALE,

300 Tons A 1, Iron Dale Foundry Iron.
100 " 1, " " "
100 " 2, " " "
100 " " Forge "
400 " Wilkesbarre " "
100 " "Roaring Run" Foundry Iron.
300 " Fort " "
50 " Catoctin " "
250 " Chikiswalungo " "
50 " "Columbia" "chilling" iron, a very superior article for car wheels.
75 " "Columbia" refined boiler blooms.
30 " 1 x ¼ Slit iron.
50 " Best Penna. boiler iron.
50 " "Puddled" "
50 " Bagnall & Sons refined bar iron.
50 " Common bar iron.

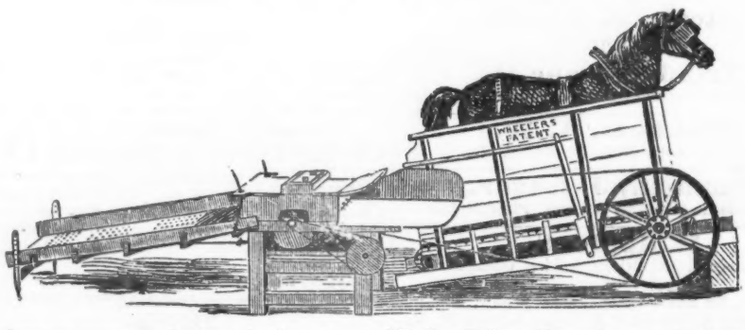
Locomotive and other boiler iron furnished to order.

GOODHUE & CO.,
64 South street
New York.

Roman Cement,

OF the best quality, now landing from ship Hendrick Hudson, from London, made by Billingsley, Mial & Co., and superior to anything of the kind manufactured in England. For sale by G. T. SNOW,
109 Water Street, New York.

Railroad Horse Power and Saw Mill.



The above cut represents the most simply constructed Endless Railway Power in use. As shown it is attached to a threshing machine, with which it is most extensively used; but for sawing wood at railroad stations it has no superior. The saw mill which accompanies it is simple, cheap and convenient. The single power by the weight of the horse at the elevation of one and a half inches to the foot—the horse weighing eleven hundred pounds—is capable, with the attention of at most three men, of sawing twice in two from 12 to 20 cords of four foot wood per day. They have been used several years on several roads in New England, and for manufacturing establishments more than three thousand of these powers are in use, and without exception have given universal satisfaction. Their principal advantage is, their great simplicity: the full speed being obtained with simple rack and pinion, without intermediate gearing. They are warranted to give satisfaction as above described, or may be returned at my expense, and the purchase money refunded.

HORACE L. EMERY,
Nos. 469 & 371 Broadway, Albany, N. Y.

September 6, 1849.

Iron Safes.

FIRE and Thief-proof Iron Safes, for Merchants, Banks and Jewelers use. The subscriber manufactures and has constantly on hand, a large assortment of Iron Safes, of the most approved construction, which he offers at much lower rates than any other manufacturer. These Safes are made of the strongest materials, in the best manner, and warranted entirely fire proof and free from dampness. Western merchants and the public generally are invited to call and examine them at the store of E. Corning & Co., sole agents, John Townsend, Esq., or at the manufactory.

Each safe furnished with a thief-detector lock, of the best construction.

Other makers' Safes repaired, and new Keys and Locks furnished at the shortest notice.

H. W. COVERT,
cor. Steuben and Water sts. Albany.

August 24, 1848.

To Railroad Companies and Contractors.

FOR SALE.—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address JAMES ROWLAND,
Prest. Beaver Meadow Railroad & Coal Co.,
Philadelphia.
or, L. CHAMBERLAIN, Sec'y,
at Beaver Meadow, Pa.

May 19, 1849. 20tf

India-rubber for Railroad Cos.

RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12 inches diameter. Suction Hose. *Steam Packing*—from 1-16 to 2 in. thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,
Warehouse 23 Courtlandt street.

New York, May 21, 1849.

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee. G. A. NICOLLS,
Reading, Pa.

To Steam Engine Builders.

THE Undersigned offer for sale, *at less than half its cost*, the following *new machinery*, calculated for an engine of 62 inches cylinder and 10 feet stroke, viz:

2 Wrought Iron Cranks, 60 inches from centre to centre.
1 Do. do. Connecting Rod Strap.
2 Do. do. Crank Pins.
1 Eccentric Strap.
1 Diagonal Link with Brasses.
1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to

HENRY THOMPSON & SON,
No. 57 South Gay St., Baltimore, Md.

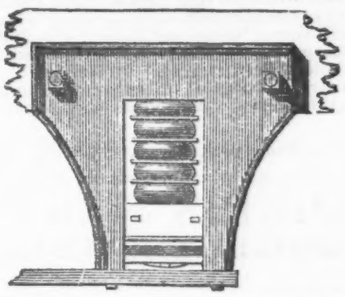
Sept. 12, 1849.

Steam Boiler Explosions.

THE Subscriber having been appointed sole Agent for Faber's Magnetic Water Gauge, is now ready to supply the trade, and also individuals with this celebrated instrument. Besides the greatest safety from explosion resulting from its use, it is a thorough check against careless stoking and feeding. In marine engines it will regulate the exact quantity required in the "blow off." Pamphlets containing full information, can be had free on application to the Agent,

JOSEPH P. PIRSSON,
Civil Engineer, 5 Wall st.

Patent India-rubber Springs.



FULLER & CO. beg that parties interested in the use of these Springs will not be misled by ex-parte statements, but will examine the actual Patents and judge for themselves.

The statements made by Messrs. Crane & Ray shall be treated seriatim.

They claim to have first introduced India-rubber Springs about two years since, whereas they were used by Fuller & Co. nearly four yeas ago.

They claim the exclusive right to use Sprngs. They have no right whatever; every spring they make is an infringement upon Fuller's patent, dated 1845. They claim the sole right to make India rubber, and apparently think because a species of India-rubber was patented some years since, that no person can make any other now. A patent was *granted in January last* to Messrs. Tyer & Helm for a new and improved kind of Vulcanized rubber which is used by Fuller & Co.

Fuller's springs it is needless to say are in very general use, although Messrs. Crane & Ray pretend that they know of only one or two instances. Fuller & Co. guarantee all parties who use their springs.

As to the Legal proceedings—an action has been commenced against one company for an alleged infringement of Goodyear's patent, but is being defended with every prospect of success. An action has also been commenced by Fuller & Co., against parties for an infringement of Fuller's patent, and *this will be done in every case of violation.*

In every case in which Fuller's spring has been applied, it has been pronounced superior to that made by Mr. Ray, and this fact induces Messrs. Crane & Ray to claim the right of using it. They attempt to lead the public from the real question at issue, by producing a Deposition as to Mr. Ray having *tried to make* a spring which Mr. Fuller *did make* and patent. If Mr. Ray did invent a spring in 1844, why did he not apply for a patent, and not wait until 1848, when his application was rejected!

Mr. Knevitt has never stated that the springs were put on by him, which are refered to in Mr. Hale's article, but he does state that those springs are made according to Mr. Fuller's specification, and consequently are an infringement upon it. The article of Mr. Hale in the Boston Advertiser, quoted by Messrs Crane & Ray, was followed immediately by a letter in the same paper, from Mr. Knevitt, setting forth the facts of the case.

The springs refered to were put on by Mr. Ray before Mr. Knevitt came to the United States; when he arrived he gave Mr. Ray notice not to proceed further in making or vending such springs; Mr. Ray then said he did not wish to infringe, and would not continue to do so, and he then contrived an India-rubber and Air spring which totally failed.

In the selection of their first agent, Fuller & Co. were particularly unfortunate, and their reason for adverting to it is simply that it may tend to throw light on subsequent transactions, and furnish a reply to the remark, "that this opposition was invited by their own delay in getting the thing to work." The individual refered to undertook the agency for Fuller's springs, and left Liverpool on the 1st January, 1847, furnished with a complete set of drawings, models, etc., and every necessary instruction to make arrangements respecting the supply of material, and to have it at work within the time limited by law; but *from that hour to the present, not a single communication has been received from the said agent.* Some of their models, however, they have traced into the hands of parties now seeking to invade their rights, and by whom they understand they have been exhibited as specimens of their own invention.

The superiority of Fuller's spring is implied in the offer of the New England Car Co. to make springs upon his principle (now that a preference is given to the disc and plate form) and this notwithstanding the fact, that Fuller & Co. have a patent, and that Mr. Ray's application for one was rejected. The public can judge which company's course has been the most honorable, or whose statements are entitled to consideration.

Fuller's springs can be obtained of *Mr. Knevitt* the Agent, at 38 Broadway New York, and of *Messrs. James Lee & Co.*, 18 India Wharf, Boston.

May 26, 1849.

C. W. Bentley & Co,

IRON Founders, Portable Steam Engine Builders and Boiler Makers, Corner Front and Plowman Sts., near Baltimore St. Bridge,

BALTIMORE, MARYLAND.

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupyidg but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fillings for Steam, Water, Gas, etc., constantly on hand,

Baltimore, June 6, 1849.

PHILADELPHIA CAR MANUFACTORY,

CORNER SCHUYLKILL 2D AND HAMILTON STS.,

SPRING GARDEN, PHILADELPHIA CO., PA.

Kimball & Gorton,

Having recently constructed the above works, are prepared to construct at short notice all kinds of

RAILROAD CARS, Viz:

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country.

Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day.

Philadelphia, June 16, 1849. 1y25

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front-street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y.

Text Book of Mechanical Drawing,

FOR the use of SCHOOLS and SELF-INSTRUCTION, containing,

1st. A series of progressive practical problems in Geometry, with full explanations, couched in plain and simple terms; showing also the construction of the *parallel ruler, plane scales* and *protractor.*

2d. Examples for drawing *plans, sections* and *elevations* of Buildings and Machinery, the mode of drawing elevations from *circular* and *polygonal* plans, and the drawing of Roman and Grecian Mouldings.

3d. An introduction to *Isometrical drawing*, with 4 plates of examples.

4th. A treatise on *Linear Perspective*, with numerous examples and full explanations, rendering the study of the art easy and agreeable.

5th. Examples for the projection of shadows.

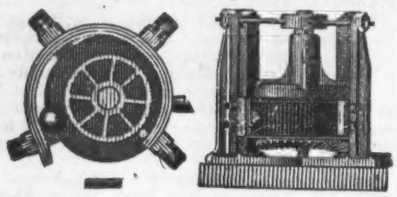
The whole illustrated with 50 STEEL PLATES.

Published by WM. MINIFIE & CO.,
114 Baltimore St., Baltimore, Md.

Price $3, to be had of all the principal booksellers.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has give universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNdersigned, the *Original Inventor* of the *Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country. A. T.

Kensington, Philadelphia Co.,
March 12, 1849.

ENGINE AND CAR WORKS.

DAVENPORT & BRIDGES,

HAVING ASSOCIATED WITH THEM

MR. LEWIS KIRK, OF READING, PA.,

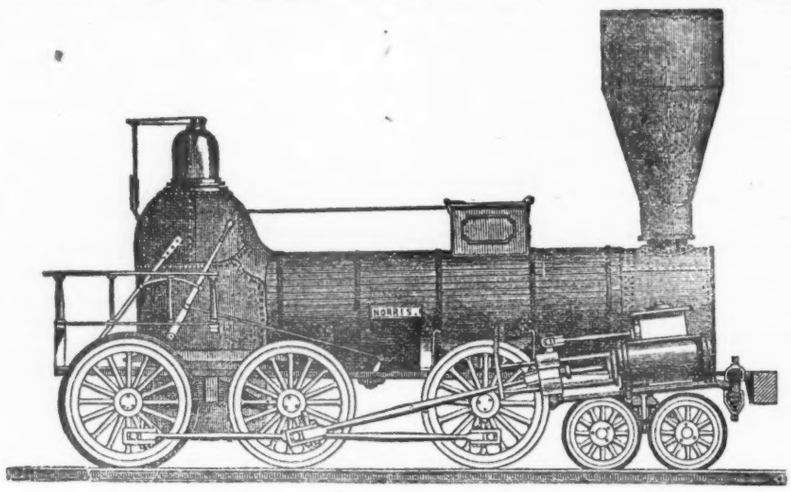
And recently enlarged their Establishment, (making it now the most extensive in the United States,) they are prepared to manufacture to order Locomotive Engines and Cars of every description. Stationary Engines, Steam Hammers, Boilers, and all kinds of Railroad Machinery. Also, Castings and Forge Irons of all kinds—including Chilled Wheels, Frogs, Chairs, Switches, Car Axles, and Locomotive Cranks, Connecting Rods, Steel Springs, Bolts, etc., etc. Orders from all parts of the country solicited for Engines and Cars, or any part or parts of the same. All orders will be furnished at short notice, and on as good terms as any manufactory in the country. Coaches pass our works every fifteen minutes during the day, from Brattle St., Boston.

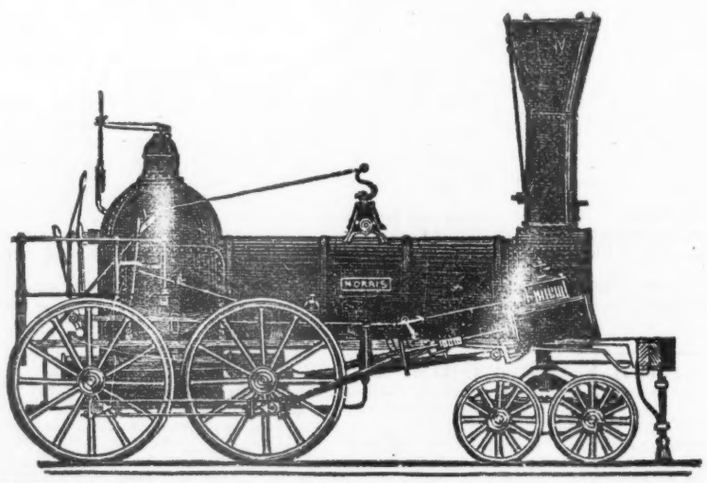
DAVENPORT, BRIDGES & KIRK.

Cambridgeport, Mass., February 16th, 1849.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS.

SPECIMENS OF
STOOP, BALCONY AND CEMETERY RAILING,

Manufactured by

STARKS & PRUYN,

Corner Pruyn and Liberty-streets, Albany.

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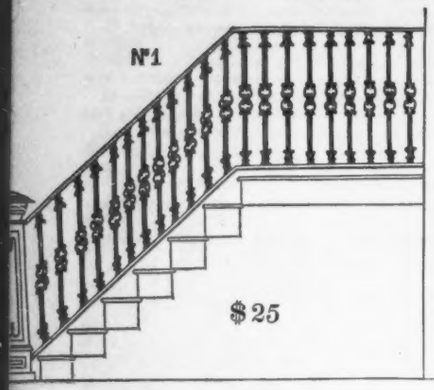
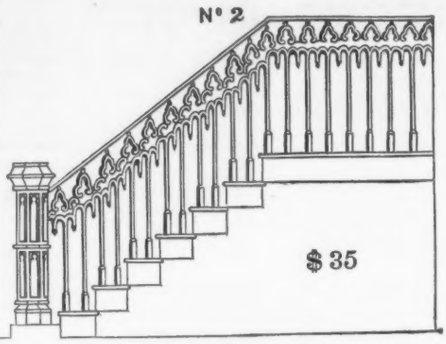
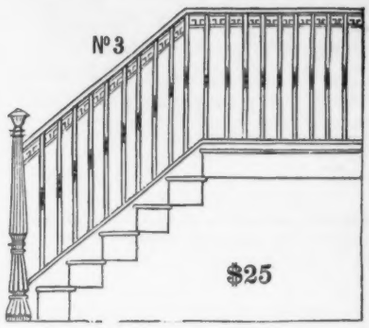
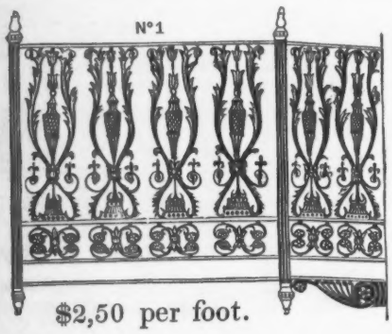


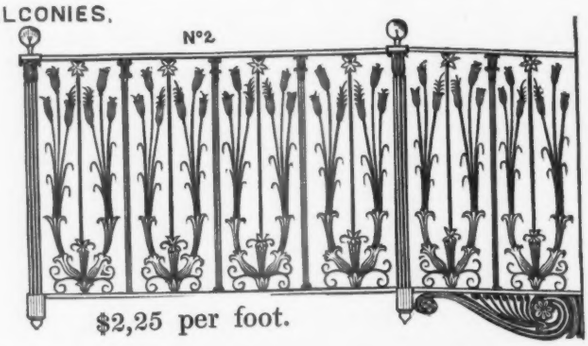




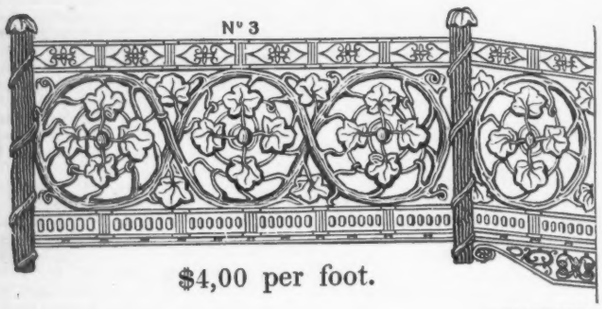
BALCONIES.



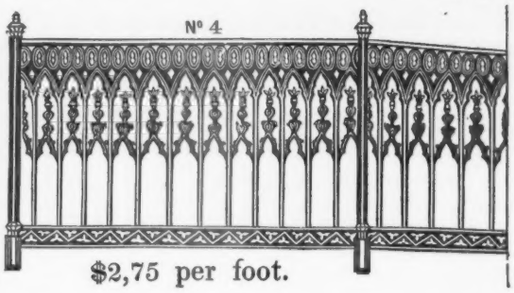
$2,50 per foot.



$2,25 per foot.

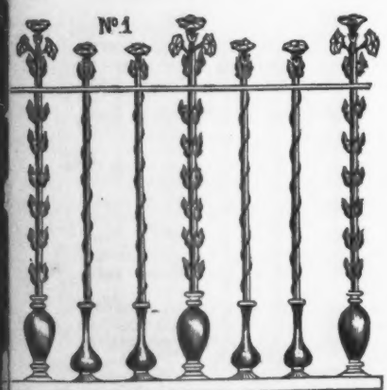


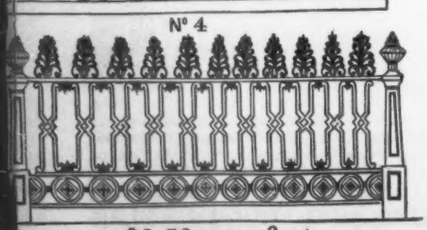
$4,00 per foot.



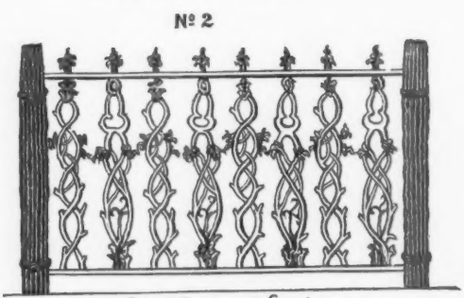
$2,75 per foot.

CEMETERY RAILING.

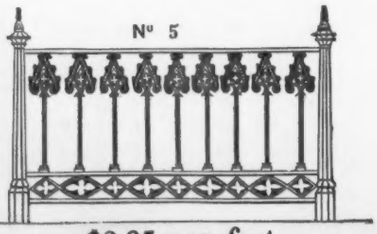




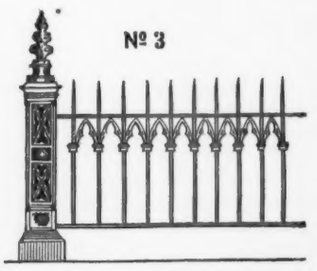
$2,50 per foot.



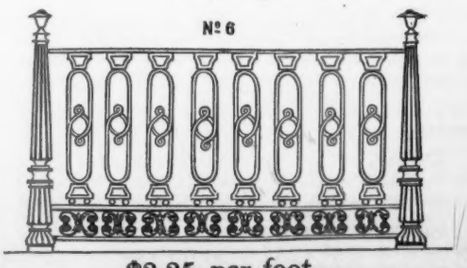
$3,00 per foot.



$2,25 per foot.



$2,25 per foot.



$2,25 per foot.

A Discount of 10 per cent will be allowed on all work packed and delivered at the Manufactory—A great variety of BALCONIES, STOOPS and RAILINGS, may be had at much lower price, than those accompanying the cuts.

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Albany

Jackson

Bartlett

Conway

Eaton

Freedom

Effingham

Wolfeborough

Brookfield

Wakefield

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Milton

Farmington

Alton

Newfield 1358

Pop. 2442

Parsonsfield 4th Div. 1263

Porter 1133

Hiram 1242

Brownfield 1360

Denmark 1143

Fryeburg 1386

Sweden

Bridgton 1987

Naples 758

Standish 2198

Sebago 707

Baldwin 1154

Limington 2111

Limerick 1505

Pop. 1510

Acton 1407

Shapleigh

Waterboro 1916

Hollis 1476

Lyman 1476

Alfred 2238

Sanford 2238

Berwick 1698

South Berwick

Salmon Falls

York

Wells

Kennebunk

Biddeford

Saco

Portland

Scarborough

Cape Elizabeth

Westbrook

Deering

Falmouth

Cumberland

Gorham

Windham

Raymond

Casco

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Songo Pond

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Androscoggin River

Presumpscot River

Saco River

Mousam River

Kennebec River

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Long Pond

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Saco River

Mousam River

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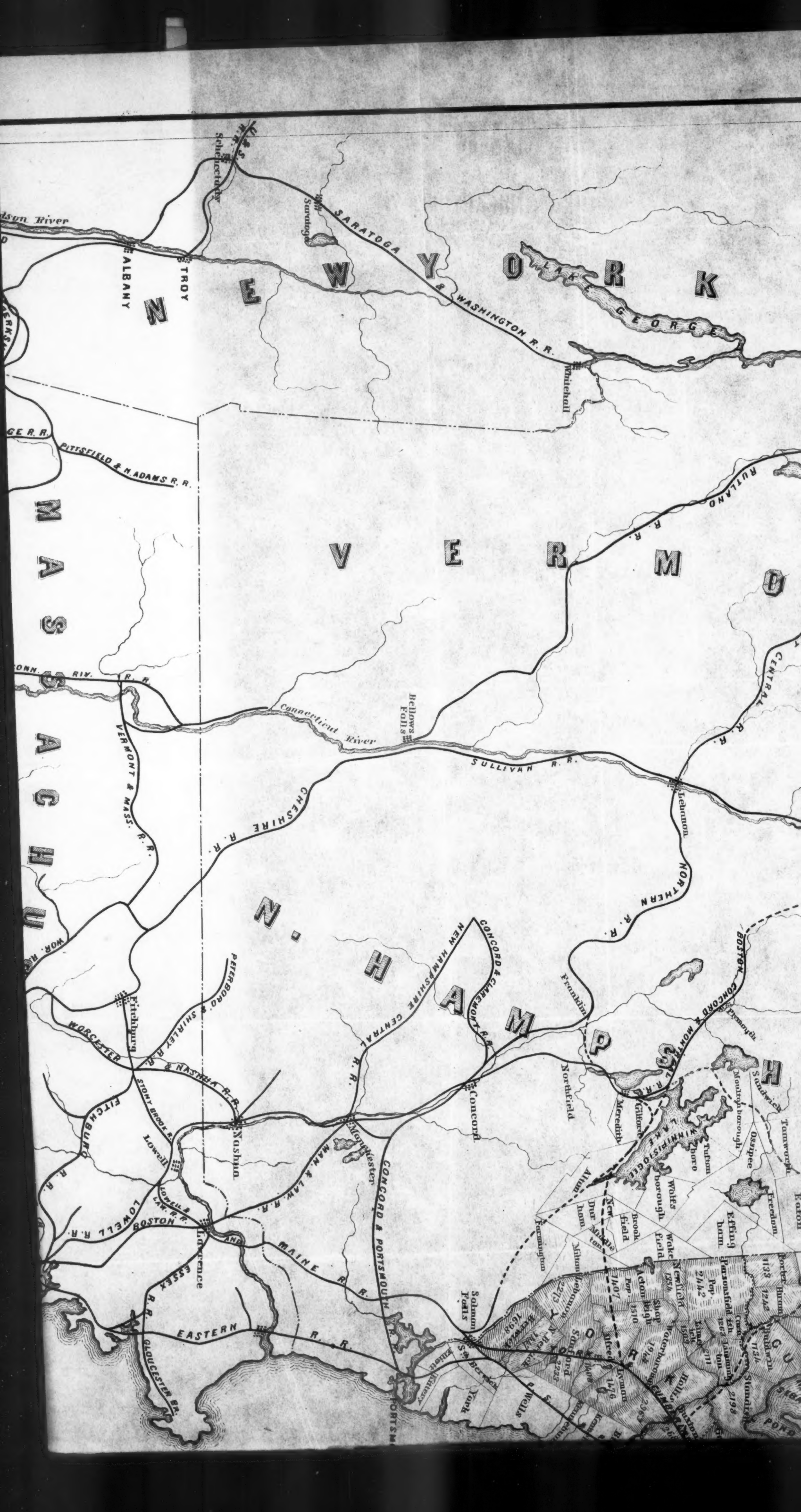
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Waterboro
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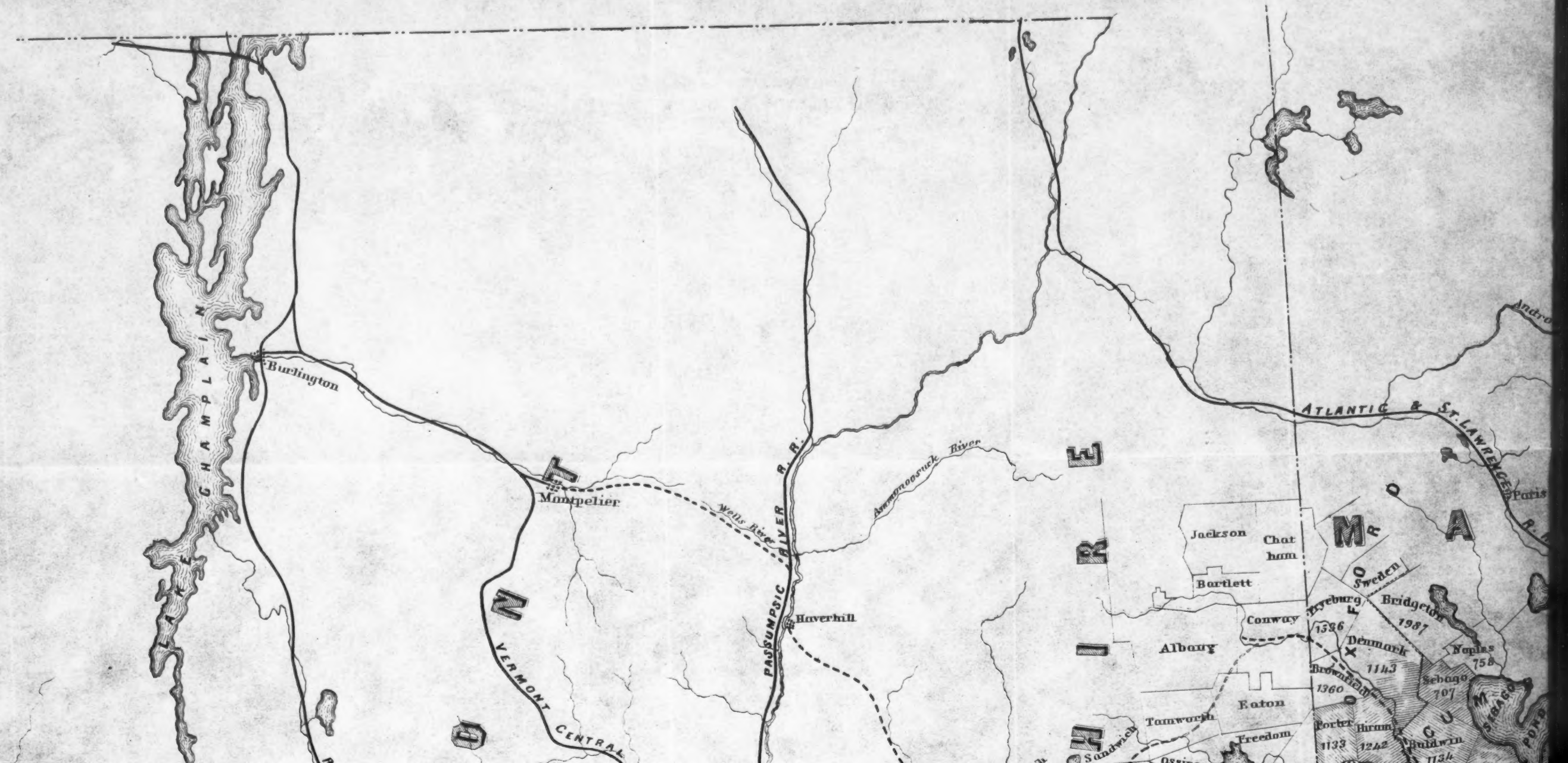
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Chat ham
Bartlett
Sweden
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Freedom
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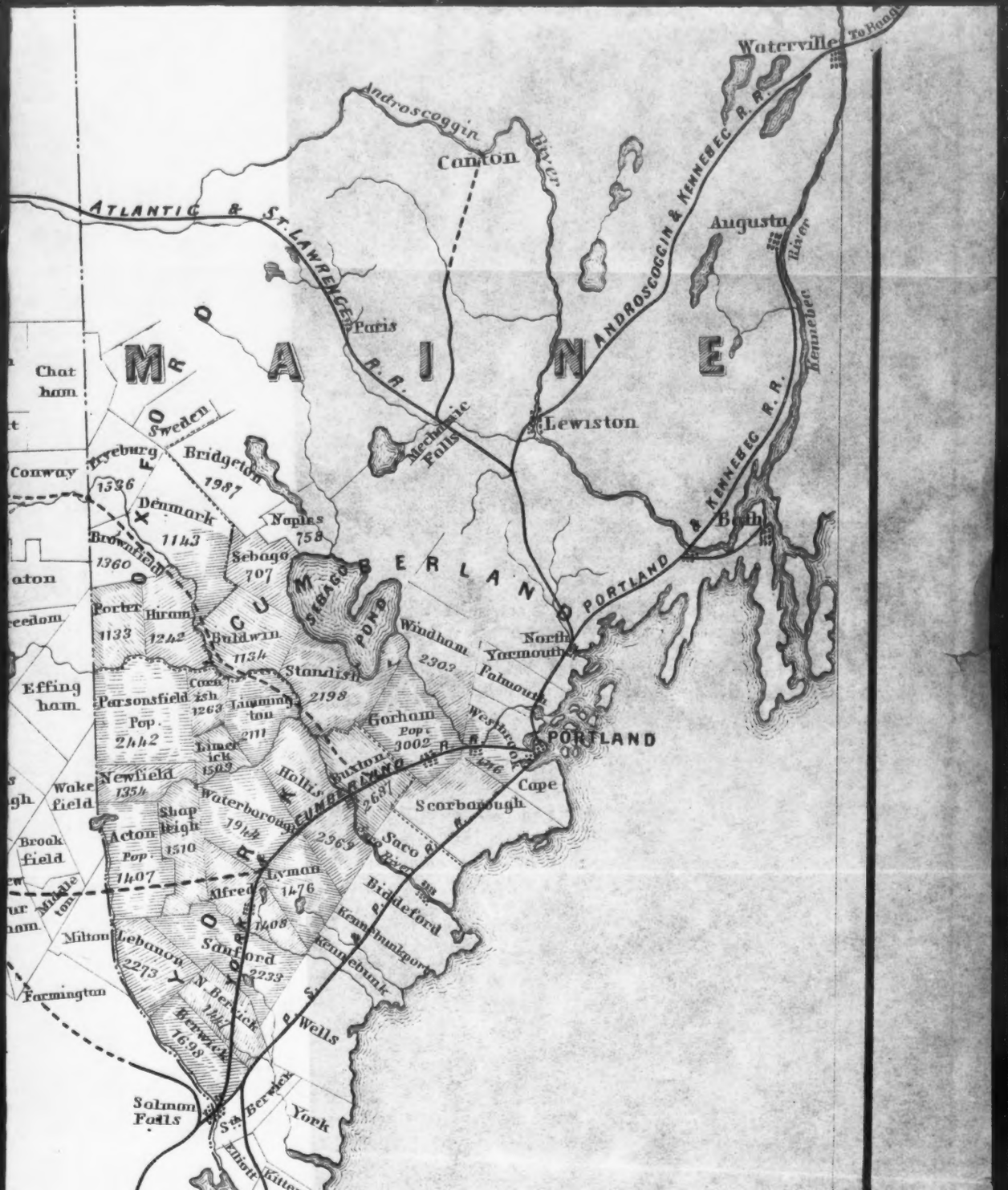
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Waterville
To Bangor
ATLANTIC & ST. LAWRENCE R.R.
ANDROSCOGGIN & KENNEBEC R.R.
Augusta
Kennebec River
Paris
Mechanic Falls
Lewiston
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Bath
PORTLAND
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Conway
Sweden
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Brownfield 1360
Sebago 707
Sebago Pond
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North Yarmouth
Falmouth
Standish 2198
Gorham Pop. 3002
Westbrook
Cape Scarborough
Saco
Biddeford
Kennebunkport
Kennebunk
Wells
York
Eliot
Kittery
Salmon Falls
S. Berwick
Berwick 1698
N. Berwick
Sanford 2233
Lebanon 2273
Milton
Farmington
Effing ham
Wake field
Brook field
Middle ton
Newfield 1354
Shap leigh 1510
Acton Pop. 1407
Waterborough 1944
Limerick 1503
Limington 2111
Parsonsfield 1263
Porter 1133
Hiram 1242
Baldwin 1134
Cornish
Hollis
Buxton
Saco R.
Lyman 1476
Alfred 1408
Oxford
Cumberland
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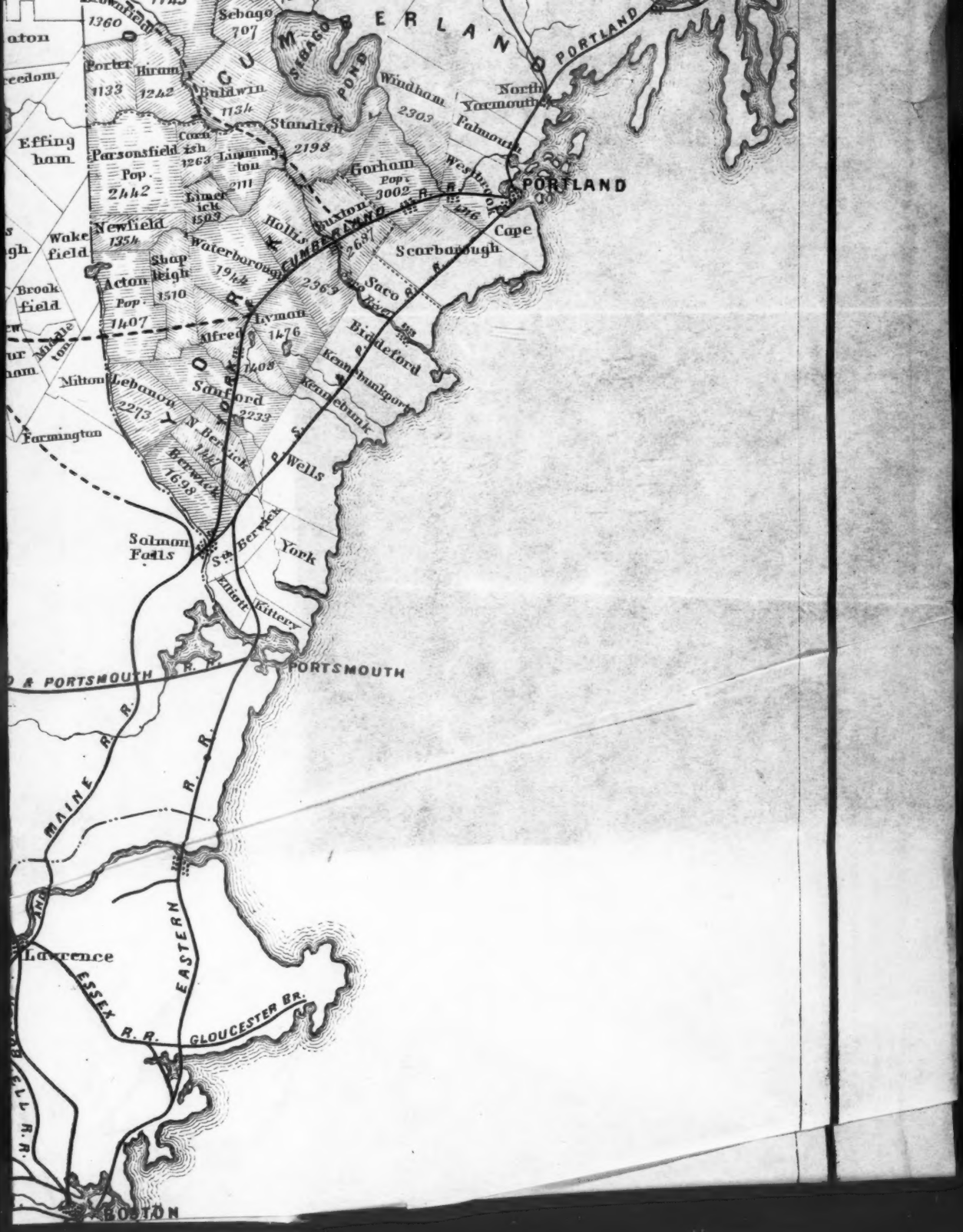
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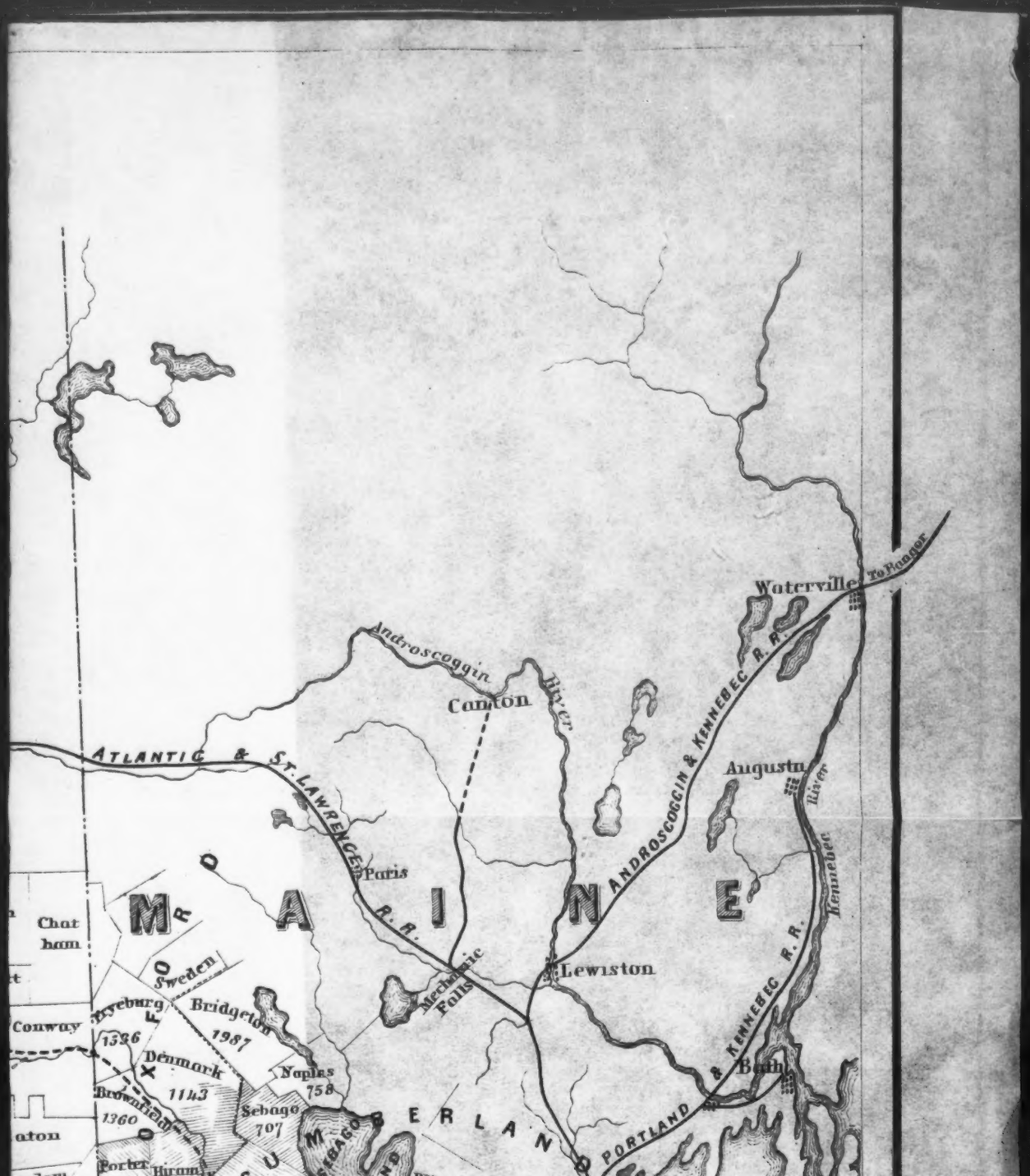
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Denmark 1143
Naples 758
Sebago 707
Brownfield 1360
Porter
Hiram
OXFORD
CUMBERLAND

crystalline grains like shot; yet it is distinguished by the name of the *coarse grained ore*; for it is not of homogeneous structure, but consists of particles of different lustre (not granular) firmly united in one mass. These have been supposed from some experiments of the late David Henderson Esq., to be the per-oxide and protoxide of iron, thus seen distinct from each other. The color of the ore is jet black—not generally lustrous; but a portion of the bed is made up of ore, which breaks into rhomboidal sheets like slates, whose face is highly glistening. In the ore are often found large rude crystals of hypersthene of the form of rhomboidal prisms with perfect cleavage obliquely across the prism, and with faces most delicately striated. A mineral resembling serpentine occurs with the ore, and between it and the hypersthene wall rock in a thin layer.—It appears to be an undiscribed combination of silica, iron, magnesia and water of the chlorite family, the magnesia replacing per oxide of iron. I have analysed it with care, and found its composition to be as follows:—

Silica,	31,11
Magnesia,	0,66
Water,	14,93
Prot. oxide of iron	36,85
Alumina,	15,88
Lime,	0,40
	99,83

Carbonate of lime occurs in small quantity with this ore, incrusting it with their layers; and through portions of it sulphuret of iron may occasionally be detected sparingly diffused.

A third bed of ore is opened in the ridge of hypersthene rock east of the stream at an elevation overlooking the village, and not more than an eighth of a mile from the furnace. This is called the *fine grained ore*, being of finer texture and more granular than the last described. It resembles somewhat the Sandford ore and the line of bearing of the vein southward is towards the Sandford mine, Professor Emmons considers its width about 70 feet, and that it has been traced in length 5742 feet. It is partially intermixed with rock, but where it is quarried a large body of unmixed ore is exposed to view. Its associated minerals are similar to those at the other mines, calcareous spar in thin layers incrusting the fragments, and a little sulphuret of iron being dispersed through it.

It cannot be important to more than simply refer to the several other localities of ore in the hypersthene rock of this vicinity, any one of which seems to possess inexhaustible supplies; and all of which are found to produce ores of the same general character and action in the furnace.

The bed, however, before alluded to, in the granitic rock four miles west of Lake Sandford, called the *Cheney ore bed*, is worthy of more particular notice. It is exposed in a break or gap in the hill of red granite, on the east side of which is exposed the hypersthene rock. On one side this gap is bounded by a wall of ore twenty or thirty feet in height; its thickness is concealed by the fallen debris of ore, rock and soil; but I should judge that at least a width of the bed of twenty feet might be relied upon. The appearance of the ore is some what like that of the fine grained ore, rather close and compact in its structure; but in its chemical properties I find it to differ from all the ores of the hypersthene rocks in giving a glassy cinder in the crucible with earthy fluxes, which I have not succeeded in obtaining in a large number of experiments with any of these. For this reason I judge it to be well worthy of more careful and thorough trials in the blast furnace, to remedy if possible the difficulties attendant upon the reduction of the Adirondac ores. This subject will be treated of more fully in the succeeding number of the Journal, The Cheney ore is a hard ore to mine in consequence of its close texture; and according to the general impression that an ore hard to mine will be hard to work in the furnace, it may not prove valuable. But no injurious minerals are seen to accompany it, and I have not detected any sulphur in it. H

The Coal Mines of Eastern Virginia.

While travelling through the southern part of Virginia a short time since, I took occasion to visit the coal pits of the Clover Hill Company. These pits are situated in Chesterfield county, and are distant by railroad 28 miles from Petersburg, and about 30 from Richmond.

There is also a railroad communication with tide water upon the Appomattox river, by a branch road diverging from the Richmond and Petersburg road, 8 miles from the latter place, and running to Port Walthall, 2½ miles. The Clover Hill Company constructed their road, 18 miles long, at a cost of $100,000. It diverges also from the Roanoke and Petersburg railroad, 10 miles miles from the latter place, and 13 from the former, and runs nearly west to the Clover Hill property. By these roads the pits have direct railroad communication with the city of Richmond, in a distance of 30 miles, with the city of Petersburg in a distance of 28 miles, and with the Appomattox river at tide water, in a distance of 22½ miles.

At Port Walthall, the new terminus on the Appomattox, the company have constructed suitable wharves, side tracks, and coal yards, and large vessels can with ease take in their loads at this place for any port in the United States.

The presence of coal at Clover Hill was accidentally discovered in 1840, by J. H. Cox, Esq., the proprietor of the estate, in sinking a small drain. The outcrop was struck by the workmen, and this led Mr. Cox to examine the quality and probable amount of the deposit.

These examinations led to the sinking of several pits, and the workings are now very extensive.—The coal is bituminous, and equal in quality to the best Liverpool. There are at present five pits in active operation, and the supply last year was 1'-500,000 bushels.

Mr. Cox, the President of the Clover Hill Co., and former proprietor of the mine, having disposed of his individual interest to the company, has now the general superintendence of its affairs.

From the great angle, 40 degrees, at which the coal dips, it requires extensive and deep shafts and planes to reach it. I have entered and examined 2 only of the workings, one of which, the "Beaver pits," is entered by means of an inclined plane, which enters the earth at an angle of 40°, and runs at this angle for a distance of 620 feet; it then strikes a level, where a divergence takes place for a short distance, and another plane descends at the same angle for 3 or 400 feet more.

The descent from the top of the first plane is accomplished by means of steam power. But the second one is done by mule or horse power. These pits have been worked to a great extent and I should judge from observations, that the galleries extend for a distance of 5 or 6 miles. The coal is found here in a vein of from 8 to 15 feet in thickness, and is very easily worked. The daily supply from these pits is 3,000 bushels.

There is another pit 150 feet deep, a short distance above the Beaver pits, owned and worked by two gentleman, these I did not enter, but understood that the supply is 1000 bushels daily: They are now engaged in constructing a plane, and expect shortly to be able to double that amount.

The old Clover Hill pits are also about 150 feet deep and have been the longest worked of any upon the estate. They are now busily engaged in "robbing" (as it is called) these pits, making it somewhat dangerous for visitors, and I did not venture down.

The results of the 'robbing' process are distinctly visible upon the surface; in the shape of various immense holes caused by 'robbing' out the coal supports left in the first excavations. As soon as these supports are robbed out, the superincumbent earth falls in, leaving as a natural result a number of large holes in the surface. In one place the whole surface for a large area has settled some 4 or 5 feet. The supply at these pits is daily about 2000 bushels.

The company having exhausted partially the old workings, commenced in May, 1848, the sinking of a pair of new shafts, which were completed in July, 1849. These shafts were sunk 450 feet perpendicular before coal in sufficient quantity was found.

The shafts are round, about 8 feet in diameter, and for some 30 feet from the surface are bricked up. At this distance down, the sand rock of this country was struck, and with two or three breaks was followed to the bottom. These breaks are also bricked up. Mr. Cox accompanied me in a trip down these shafts, and I was much gratified with the results of it.

We placed ourselves in the bricket, and the signal being given—down we went. The sensation of descending this great distance, and at a rapid uniform speed, is very peculiar and indiscribable; (it can only be compared to the sensation of a person who is dreaming of falling from some great elevation.) We were soon out of the reach of daylight, and our miners' lamps showed us the sides of the shaft, smooth and round, flying by us, at the rate that would astonish a locomotive. Upon reaching the bottom, however, I was well repaid for my trip, for we were in the most beautiful vein of coal I ever saw. This vein is fully 20 feet thick, and of a superior quality. The roof and floor of the vein are as smooth and polished as if they had been planed. The coal here is in fact almost inexhaustible, and these shafts will answer for 20 years or more. Every thing connected with the new works looks as if it was intended for use. The workings below are already laid out for extensive use. The present supply is over 1000 bushels daily; but it will soon be doubled, as the excavations increase in extent. After I had looked to my satisfaction, we stepped into the bucket, the signal was given, and ere I had time to think, we were once more up top of the ground. Upon looking for the power that brought us thus suddenly from the bowels of the earth, I found a new 40 horse power engine, of the manufacture of A. & W. Denmead & Son, of Baltimore, that works as truly and nicely as a lever watch; and I was almost tempted, from the beauty of the machinery and the apparent strength of the ropes and gearing, to step into the bucket and try the trip again. The coal from these workings weighs about 74 pounds to the bushel, and can now be delivered at tide water for $3 to $3 20 per ton of 30 bushels. The railroad charge is at present $1 05 to $1 10 per ton freight for 22½ miles. This charge I should suppose very high, and it will without doubt soon be reduced, when this coal can be furnished at much less

than the present prices. The present daily supply from all the pits is about 6000 bushels. This amount can with the present conveniencies be doubled. There are 5 engines of from 30 to 40 horse power, each busily employed, and the number engaged in and around the mines will not vary far from 500. These mines possess an advantage in point of distance from tide water, that no other mines in this country can possess; and I have no doubt but that coal can be furnished and of a superior quality, from these pits cheaper than from any other works in the country. R

For the American Railroad Journal.

Ohio Railroads.

Those who have not carefully explored the Mississippi Valley, have a very imperfect conception of the resources of the West, which are already in rapid process of developement. Ohio, the most easterly State in the valley, with a population of two millions of hardy, enterprising and industrious people, is struggling to possess those facilities which will connect her with the commerce of the world.—By canal navigation the Ohio river is now accessible from the interior at five different points, and Lake Erie at two. The two trunk lines of canal cross the State from north to south.

Individual enterprise is undertaking the work of facilitating trade and travel to and from and thro' the State by means of railways. The first railroad completed across the State is from Cincinnati to Sandusky City, a distance of 220 miles. This thoroughfare is formed by connecting the Mad river and Lake Erie railroad, with the Little Miami and Springfield railroad. The Sandusky Bay being the only natural harbor on the southern shore of Lake Erie is a very favorable terminus for this road, and the one next mentioned. The bay is formed by two peninsulas extending from the mainland, whose terminal points approach within three-fourths of a mile of each other, and form a perfect breakwater, for the water sheet within their embrace. It is about 12 miles long, with an average breadth of three miles. Within, its water is deep enough for any vessels which navigate our lakes. The road from the lake into the harbor, owing to the existence of a sandbar, is intricate or crooked. This bar can be removed at a trifling expense, and will be before the present season closes. The General Government has never expended one cent towards making or improving a harbor at this place. $15,000 was appropriated to "preserve" it, at a time when the lake was making a breach through the peninsula.

The City of Sandusky has provided a dredging machine, with which to straighten the road into the harbor. But for the fearful visitation of the cholera with which this place was afflicted, during the past summer this work would have been effected ere now.

It rather surprising, that this, being the only national harbor on the southern shore of Lake Erie, has been so wholly neglected by the Government. Take for instance the neighboring port of Cleveland. There to create a harbor, or in the language of the appropriations "for the improvement of the harbor of Cuyahoga," there have been appropriated from time to time $149,413 15. With this sum a safe harbor has been formed, when once entered, but when most needed it is most difficult to make because of the narrow channel between the piers.—The plan of extending piers out into the lake, without reference to the river is now being adopted, which adds greatly to the facilities of steamboat business in mild weather. During the late war with Great Britain, Com. Perry made Sandusky Bay his head quarters, and the Navy Department have found no other place within our wide territory suitable for a naval depot. Should Canada not be annexed the day may come when it will be required for that purpose.

The next railroad is the Mansfield and Sandusky City railroad. It is 56 miles long, and commenced working in 1846. Under the charter of the Columbus and Lake Erie railroad company, it will be extended sixty miles further south to Newark. All the earthwork of this extension is now finished, the superstructure is being laid down, and the iron provided. The company expects to have a portion of it in operation this winter and the whole completed early next spring. It is designed to continue this thoroughfare to the Ohio river at Portsmouth, by way of Lancaster, Circleville and Chilicothe.

No road in this State will embrace so many of the leading interests as this. The wheat, corn, grazing and mineral regions will be embraced in it.—Its whole length will be about 220 miles. The country is already populous, productive and wealthy. The surveys have been commenced under the charter of the Scioto and Hocking valley railroad company.

From Xenia to Columbus, 57 miles, a railway is now being constructed, which the company hope to have in operation during the coming winter or early in the spring. As this road connects at Xenia with the Little Miami railroad a continuous track of iron rails will extend from the capital of the State to the Queen City of the west, a distance of about 120 miles. This road is on the line of great east and west inland travel, and as it will be extended east, under the Central Ohio railroad co's. charter to connect with the Baltimore & Ohio road, it is second to none in importance. This latter company is now locating its road between Zanesville, one of the first manufacturing towns in the State, through Newark to Columbus a distance of some 55 miles, and it is hoped the road will be completed in two years from next spring, between these places; and in progress to the Ohio river within the next twelvemonth.

The Pennsylvania and Ohio railroad is already under contract extending from Pittsburg to Mansfield.

From Cleveland, the most beautiful city on Lake Erie, a road 134 miles in length is now in progress to Columbus. The President in his report promises to have 35 miles completed "by the setting in of winter," and under his energetic supervision we may look for a speedy completion of the whole line.

A road is also in progress from Cleveland to Pittsburgh. Very enterprising and worthy men are conducting this enterprise and there is no doubt of its early consummation.

From Dayton, one of our most flourishing inland towns, to Cincinnati, *via* Hamilton, a road is rapidly progressing, which it is expected will be in operation during the next year. Another from Springfield to Dayton is now nearly ready for the iron rails, to be extended by another company now vigorously in action to Richmond Indiana.

It will be seen from all this, that we have completed and in operation in this State 276 miles of railroad, and will have by next spring 212 miles more, and will have within the next three years, 690 miles in addition, in all about 1200 miles.

It is difficult to imagine, much more so to estimate the commercial revolution which the completion of these enterprises will produce. The great west with all her resources and productions will be opened to the world. Eastern arithmetic has no rule by which to compute the extent of trade from this source.—The experiment of the past furnishes no data by which to estimate it, because by existing facilities freight moves so slowly as to preclude the transmission of innumerable articles, the produce of the garden, the dairy and the farm, from the west to the markets of the east. But complete these railroads in a good and substantial manner and Cincinnati and New York will be only 36 hours asunder.—Let us estimate, from Cincinnati or Portsmouth to Sandusky 220 miles, 8 hours. Sandusky to Buffalo 250 miles, 9 hours. Buffalo to Albany 325 miles in 12 hours. Albany to New York, 150 miles in 5 hours; 945 miles in 34 hours, at the mean rate of 29¼ miles an hour, consequently we have two hours to share in making this whole distance in 36 hours. Increase the speed to 35 miles an hour and the whole distance will be run in 27 hours. Or from Central Ohio, say Columbus Newark, Zanesville or Springfield in three hours less.

A population so large and increasing so rapidly in a country so productive, cannot fail to sustain and sustain well, all the railroads now in progress in that great State. Not only its exports, but its imports will be immense and as time advances must increase.

In her soil, Ohio has a source of wealth more enduring, more certain and more productive than the mines of California.

Railroads in Indiana.

We extract the following from the Volunteer, published at Shelbyville, Indiana, for the purpose of presenting a connected view of the railroads in that State, completed and in progress. After speaking of the Wabash and Erie Canal, the article goes on to say—

We have the Madison and Indianapolis railroad completed and in full and successful business, commencing at Madison on the Ohio an hundred miles below Cincinnati, and passing through Vernon, Columbus, Edinburgh and Franklin to Indianapolis—a distance of eighty-six miles. The stock of this road is very valuable and yields an enormous dividend on its capital. It centres at the capital of the State, and will consequently be in connection with four other independent railroads now in forward state of construction, viz:

1st. The Terre-Haute and Indianapolis railroad commencing at Terre-Haute on the Wabash river and Erie Canal, which is a direct line between Indianapolis and St. Louis, and running through Greencastle and an agricultural country for distance of 74 miles to Indianapolis.

2d. The Lafayette and Indianapolis railroad, commencing at Lafayette, on the Wabash river and Erie canal, and extending to a southeastern direction to Indianapolis—a distance of 70 miles.

3d. The Indianapolis and Peru railroad, commencing at Indianapolis and running through Noblesville to Peru, on the Wabash river and Erie Canal—a distance of 70 miles in a northeast direction from Indianapolis.

4th. The Indianapolis and Bellefontaine railroad, commencing at Indianapolis, and extending in a northeastern direction through Pendleton, Andersontown, Muncietown and Winchester to the east line dividing the States of Indiana and Ohio—a distance of 80 miles—where it connects with the railroad in a direct line to Bellefontaine in Ohio—thus connecting at Bellefontaine with the Cincinnati and Sandusky railroad, and with the railroad which will soon be constructed betwern Bellefontaine and Pittsburgh.

This last road. it is apparent, will give the most direct connection of any with the capitol and heart of Indiana where all these roads centre, and all the eastern cities

In addition to the foregoing, there is now completed and in operation a railroad from Edinburgh on the Madison and Indianapolis road to Shelbyville—a distance of 16 miles.